ASSESSMENT WORK REPORT

for CELL CLAIMS 337054, 241583, 194992, 241582, 230056

arising from LEGACY CLAIM 4282412

Lorrain Township

Larder Lake Mining Division

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

Report prepared and submitted by Tony Bishop

August 17, 2018

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ASSESSMENT REPORT FOR CELL CLAIMS 337054, 241583, 194992, 241582, 230056 arising from LEGACY CLAIM 4282412 LORRAIN TOWNSHIP, LARDER LAKE MINING DIVISION

Prepared by Brian A. (Tony) Bishop, submitted August 17, 2018

INTRO:

Hereby submitted by Brian Anthony (Tony) Bishop [Client No. 108621, 100% holder on record], on August 17, 2018, an assessment report for work completed on Legacy Claim no. L 4282412 in Lorrain Township**,** in the W½, S½, SW¼, N½ et al, Lots 8 & 9, Con 5 in Lorrain Township, in respect of cell claims 337054, 241583, 194992, 241582, 230056, in grid cells 31M05A193, 31M05A194, 31M05A214, 31M05A172, and 31M05A152, Larder Lake Mining Division [see Appendix 3: Map 1, page 18].

As of April 10, 2018, this legacy claim is now comprised of cell claims located in the Provincial Grid as follows:

Legacy Claim #	Associated Full Cell Claim #	Grid Cell ID	Associated Boundary Cell Claim #	Grid Cell ID
4282412	140959	31M05A173	124604	31M05A154
	337054	31M05A193	140960	31M05A212
Staked Oct 15, 2016			194992	31M05A214
by B.A. (Tony) Bishop			230056	31M05A172
&			241581	31M05A153
Patrick (Mike)			241582	31M05A152
Harrington.			241583	31M05A194
Recorded Oct 21, 2016			288706	31M05A213
(6 units)			296727	31M05A174
			337055	31M05A192

Work completed to date includes grass roots prospecting, a research component, a carefully planned and mapped out series of till sampling, screening, concentrating, sorting and examining potential kimberlite indicator minerals (KIMs), microphotography, and recording these and other findings. Laboratory services were obtained from Geoscience Lab, Sudbury (EMP on 8 grains; SEM on 2 grains).

Traverses occurred on the following of these new claim numbers: Traverse 1: 337054 and 241583; Traverse 2: 241583, 194992, 230056, and 241582. On Traverse 2, we travelled the logging road through claim cells 337054 and 337055 to reach the upper northwest corner of the legacy claim area.

Appendices include detailed methodologies for field work and till sample processing (including a flowchart for concentrating), narratives, maps and field notes for 2 traverses, a brief narrative on area history, and notes on structural geology. A Map Appendix includes general claim location and road access, geological types, faults, glacial directions, magnetics, and Google Earth views of the claim.

PURPOSE:

The purpose of staking Peanut Lake 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 legacy claim L 4282412 may contain a kimberlite pipe or closely spaced pipes which manifest in the post-glacial topography as a joined pair of round lakes forming a 'peanut' shape.

ACCESS:

Access to the claim can be made from the town of North Cobalt and taking Hwy 567 east and south for 21.5km to a gate on the right immediately after Dave Bower's Farm on the left. A dirt road travels west and then north to the claim for 15km to the west of the lake [see Appendix 3: Map 2, page 19].

As the crow flies, the claim is ~2km from the nearest year-round road, ~15km from the Cobalt train station, ~20km from the Trans Canada Hwy 11, 120km from North Bay, and 400km from Toronto.

PREVIOUS WORK and significance to Legacy Claim L 4282412:

Although there is now an identified kimberlite field in the region, no known kimberlites have been established in the immediate area around legacy claim L 4282412 and no previous work of any kind on this claim has been recorded to date, according to overlays researched at the Mining Recorder's Office in Kirkland Lake.

GEOLOGY:

STRUCTURAL GEOLOGY:

Peanut Lake on Precambrian Geology Map P.3581, as best can be plotted, appears to be on/in a contact between diabase, granite, and Lorrain Formation conglomerate [see Appendix 3: Map 3, page 20].

There is also a northwest/southeast fault identified on this map trending towards the lake a short distance to the southeast that follows a contact between the granite and the Lorrain Formation.

For a more detailed write-up on the structural geology, please see Appendix 2 [page 16].

SURFICIAL TOPOGRAPHIC FEATURES:

The area in and surrounding legacy claim L 4282412 is comprised of some bedrock and thin drift cover. A short distance directly south of the lake on the claim is a sizable area that looks like a boulder field, with larger, rounded boulders in great numbers. The terrain is hilly and moderately steep in some areas, rough terrain to prospect in. A small creek flows away from the south of end Peanut Lake towards the southeast.

FIELDWORK:

Many smaller sized till samples were taken in the (presumed) down-ice area, approximately south of Peanut Lake. One alluvium sample was taken from the small creek.

14 till samples and 1 alluvium sample were collected on 2 traverses. General prospecting and site examination was undertaken on each traverse.

DISCUSSION/CONCLUSIONS & RECOMMENDATIONS: **Further discussion is presented on page 11.**

TRAVERSES: **Please refer to Appendix 4 for Traverses for detailed narratives, maps, and coordinates/field notes.**

METHODOLOGIES: **Please refer to Appendix 5 for Methodologies for Fieldwork and Till Processing**

RESULTS

The large rock shown in Photos A-D was discovered by Mike Barrette while staking a claim around Peanut Lake (it was cancelled due to irregularities) on the northeast corner of Peanut Lake in December 2015. It's probably Lorrain conglomerate but one interesting feature is an unrounded chunk of what appears to be lamprophyre, the irregular black rock.

Photos A, B, C, D: Co-ordinates 0609947_E x 5239495_N

The rock shown in Photos F & G was found by Tony approximately 10m north of the large rock in Photos A-D, in rocky till near the shore. It is probably conglomerate, but a number of prospectors and geologists have viewed it up close and some believe it to be kimberlite while others believe it to be conglomerate. Kimberlite can be notoriously difficult to identify positively.

Photo F

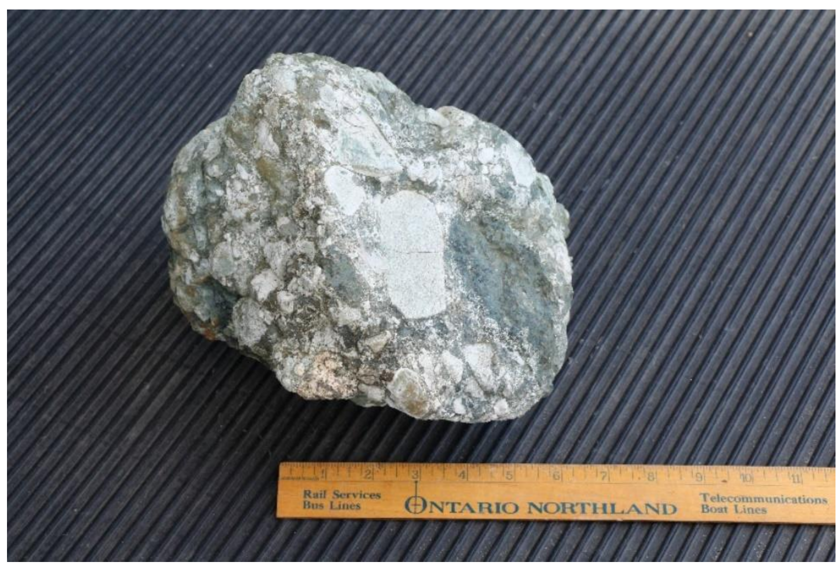


Photo G

Photo Set E: Panorama of Peanut Lake from the west side

Geoscience Lab Results from Sudbury:

Of the ten grains from legacy claim L 4282412 that were analysed at Geoscience Lab in Sudbury, two were G9s. Titanite, Fe-Oxide, Almandine, Spessartine, and Silicate (epidote?) were also identified.

EMP-100 Results, *Jobs #17-0107 & #17-0279*

Lab Findings EMP	Sample Label	Features	Dimensions
G9	S-G51	Purple, frosted	0.3 x 0.6 mm
G9	S-G52	Purple	0.3 x 0.6 mm
Titanite	S-G53	Dark purple (?)	0.4 x 0.9 mm
Titanite	S-G54	Med-dark O-B-R (?)	0.8 x 2.0 mm
Fe-Oxide	S-G55	Red/purple? Frosted	0.5 x 0.5 mm
Titanite	S-G56	Very dark Red/Purple? with white	0.4 x 0.5 mm
Almandine	S-G57	Pink frosted	0.6 x 0.8 mm
Spessartine	S-G58	Black R/P	0.5 x 0.6 mm

SEM-101 Results, *Findings CRT-17-0107-03*

Lab Findings SEM	Sample Label	Features	Dimensions
Silicate (epidote?)	S-D33	Yellow	0.8 x 1.3 mm
Silicate (epidote?)	S-D34	Yellow	0.6 x 1.4 mm

MICROSCOPE PHOTOS OF KIMs:

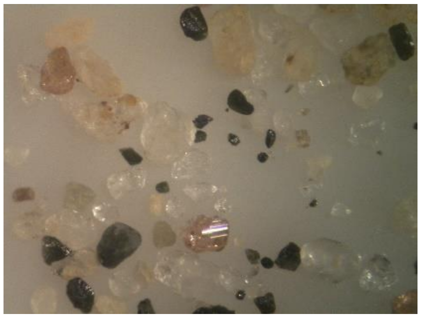


Photo 1 – Pink stone – same as Photo 2

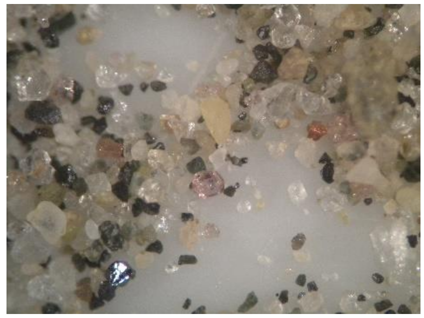


Photo 2 – Pink stone – same as Photo 1

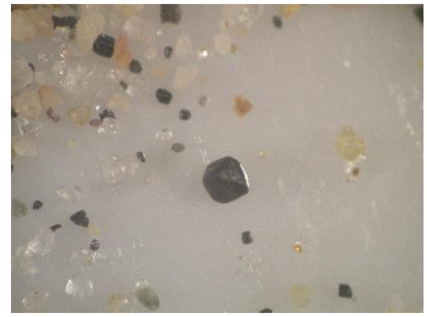


Photo 3 – Euhedral Chromite – 0.4mm

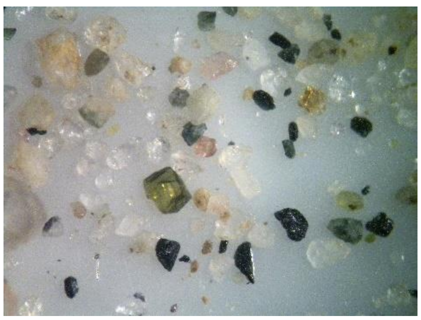


Photo 4 – Chrome Diopside – 0.4mm


Photo 5 – Potential KIMs

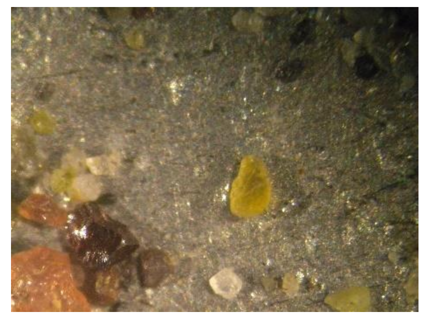


Photo 6 – Yellow grain – 0.4mm


Photo 7 – Red-brown Grain – 0.7mm


Photo 8 – Brecciated Red-Purple Garnet – 1.2mm


Photo 9 – Untested Grain


Photo 10 – Ilmenite – 2.0mm


Photo 11 – Brecciated Red-Purple Garnet – 1.3mm


Photo 12 – GMDO – 1.0mm

Photo 13 – Yellow Grain – same as Photo 14 – 0.9mm

Photo 14 – Yellow Grain – same as Photo 13 – 0.9mm

Photo 15 – Chrome Diopside – 0.4mm

Photo 16 – SD-33 – Epidote – same as Photo 17 – 0.8 x 0.8 x 1.3mm

Photo 17 – SD-33 – Epidote – same as Photo 16 – 0.8 x 0.8 x 1.3mm

Photo 18 – SD-34 – Epidote – 0.6 x 0.7 x 1.4mm

Photo 19 – SG-51 – Cr Pyrope – f – G9 – 0.3 x 0.6mm

Photo 20 – SG-52 – Cr Pyrope – G9 – 0.3 x 0.6mm

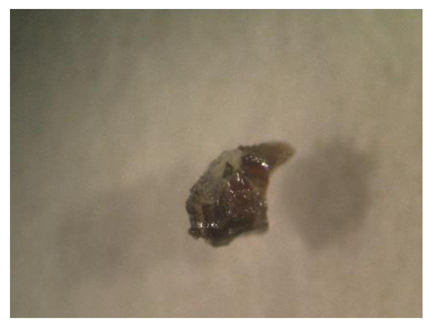


Photo 21 – SG-53 – Titanite – 0.4 x 0.9mm

Photo 22 – SG-54 – Titanite – 0.8 x 2.2mm

Photo 23 – SG-55 – FeO – 0.5 x 0.5mm

Photo 24 – SG-56 – Titanite – 0.4 x 0.5mm

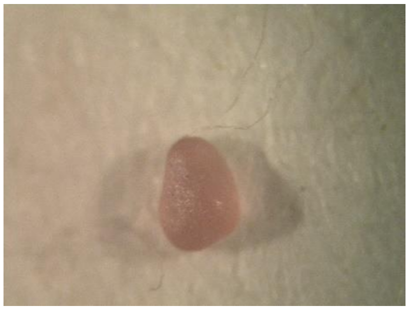


Photo 25 – SG-57 – Almandine – 0.6 x 0.8mm

Photo 26 – SG-58 – Spessartine – 0.5 x 0.6mm

LEGEND FOR MICROSCOPE PHOTO LABELS,
according to classification from 'The Canadian Mineralogist' (McLean, Banas, et al. 2007):

G – Garnet
f – Frosted surface texture
Pp – Purple
P – Pink
B – Brown
RO – Red orange
Dk – Dark in colour
M – Medium in colour
L – Light in colour
Ex. GLPPp = garnet light pink-purple

MICROSCOPE PHOTOS: RESULTS

- Photos 1 & 2: An interesting pink stone with parallel striations/growth pattern, not tested

- Photos 6, 13/14, 16/17, & 18: All brilliant yellow grains. Previous similar grains from other Bishop Claims targets tested as quartz, sphene, yellow grossular garnets, or epidote.

- Photos 16/17 & 18: Grains were tested by Geoscience Labs in Sudbury (SEM) and were labelled "silicate (epidote?)". Epidote is generally accepted as some shade of green; yellow epidote would be rare.

    - One previous grain, at my request, was retested and the label was changed from epidote to quartz. Yellow quartz is citrine, and natural yellow citrine is also very rare. Yellow grossular is exceedingly rare as is bright yellow sphene.
    - So, I find these brilliant yellow grains only in the till concentrates below my potential kimberlite target, and all are rare to very rare and not previously found in this area as far as I could discern. In previous reports, I have explained at length why I consider these grains to be kimberlitic. Using a magnet and heavy liquid I should be able to narrow these grains down to one individual mineral when time permits.

- Photos 8 & 11: Fairly large brecciated garnets suggest short travel in the glaciated till, which would indicate proximity to a kimberlitic source.

- Photos 21, 22, & 24: Discerning the colour of titanite is problematic in that it is zoned often with two or three shades/colours in a semi-transparent to translucent grain.

DISCUSSION/CONCLUSIONS & RECOMMENDATIONS

My sampling plans were originally based on the regional ice flow movement map (after Veillette, 1986) which places the last ice movement direction at ~165° in the Lake Timiskaming area.

The results were interesting and above background-normal and cannot reasonably be attributed to the known kimberlites near Haileybury or my potential kimberlites to the northwest.

Since then, I have refined the last glacial ice direction localised to the Cobalt area by plotting 88 glacial striae [see Appendix 3: Map 6, page 23].

I now realise that by using this map and local topography, the results should be more representative if the sample area is at 135°-140° from Peanut Lake [see Appendix 3: Maps 7 & 8, pages 24-25]. The sample taken from the creek in Traverse 1 that flows out of Peanut Lake [see Traverse 1: Map, page 31] produced a nice Cr Diopside [see Results: Microscope Photo 15, page 9] which indicates proximal origin down-ice of the lake. This sample was collected near to and approximately 140° south of the lake.

Elevation was also taken into account in calculating this 'new' ice flow direction (easily done on Google Earth). I can see now that my original sampling was done at an increasing elevation to the west of the sampling area. Heavy minerals do not generally flow up-hill. As my maps clearly show, a 'valley' is found at the new ice direction at a decreasing low elevation compared to my original plan (see Maps 7 & 8, pages 24-25).

Thus, one of the recommendations will be to take a number of creek and especially till samples as till samples are a better representative of proximity to target within 100 to ~500m at down-ice at 135°-140° of Peanut Lake.

Another interesting feature of Peanut Lake is the 'vegetation anomaly', which can easily seen using Google Earth [see Appendix 3: Maps 11 & 12, page 28] and photos taken during an exploration trip [see Results: Photo Set E, page 6]. Many types of trees do not grow in kimberlitic 'soil' and a grassy ring will appear around the lake in sharp contrast to the forest's edge. Such an anomaly can plainly be seen around Peanut Lake, which, while not conclusive by itself, helps lend credence to Peanut Lake being a kimberlite or two closely-spaced kimberlite pipes; however, in some areas of the world, depending on surrounding rock types, some trees grow larger, which is still a visible anomaly in the shape of the kimberlite pipe.

The one rare exception in Canada to this rule may be the cedar tree. Cedar trees regularly grow in and near swampy areas in soil that other trees cannot tolerate. Such an example would be Paradis Pond on the Bishop Claims, a short distance to the northwest of Peanut Lake.

A large portion of my previous reports [see References: Bishop, B.A. 2016-2018 reports, page 62] were on various kimberlitic and possible kimberlitic grains I'm regularly encountering. Fewer of these were found on legacy claim L 4282412 but as I previously explained I might possibly have been sampling in a somewhat off-ice direction and until resampled then previous comments will be left for the next report on this claim with the new sampling results. As funds permit, more grains should be sent to a Geoscience Lab for SEM or microprobe testing.

ON RECOMMENDATIONS FOR MINERAL EXPLORATION IN ONTARIO:

"The diamond potential of a kimberlite can not be determined until all the phases are properly tested. …

"The Kirkland Lake area has not yet been prospected for kimberlites displaying magnetic low signatures. …

"It is anticipated that only a small fraction of the kimberlite pipes that actually exist have been found. **Most of the known kimberlite pipes have not been adequately tested for diamond content, considering these are complex multi-phase intrusions in which diamond content could vary drastically**" (Sage, 2000)

This is all very important. My report on legacy claim 4282142 goes into detail on the finding of an 800-carat yellow diamond in the Cobalt area [Bishop, B.A. (2018a), p28-32]. This would, in all probability, come from the deep diamond zone I've been describing. **This is where garnets other than the traditional G10s come into play and where my various non-magnetic grains (two of the three G11s from 4282444 are non-magnetic) become interesting, and when non-magnetic pipes become very important to locate and test**.

ABOUT THE CLAIMS:

In the breadth of two townships, Gillies Limit and Lorrain, in a line ~15km long trending southwest-northeast, are 12 targets being considered as potential kimberlites, and the easternmost targets intersect a northwest-southeast line paralleling the Cross Lake Fault ~6km long that comprises another 8 targets also being considered as potential kimberlites. All are near major faults and many have cross faults running through or near to them. These comprise the 'Bishop Claims'. Kimberlites are commonly found in 'clusters'.

One of **The** Majors who visited me verbally stated that they had not looked at this area and that the published and in-house mag flyovers at 200m spacing could easily have missed them, as typically diamondiferous pipes in Canada are between 60-200m wide, and although I did try to explain that having a weak to no mag signature in many Canadian kimberlites consistently correlates to higher diamond content so no recognisable mag signature might be a good thing [refer to Bishop, B.A. (2018b), page 50], the senior representative insisted on the importance of a 'solid' mag signature as important to the company (which is true in some areas of the world), although the much younger geologist who accompanied him agreed with me.

These targets comprise nearly perfectly round to half-round – when faulted, lakes of the same size range as the diamond pipes found in the Lac de Gras area where virtually all kimberlites are found beneath round lakes, as are all my targets. Attawapiskat, having been covered by the post-glacial Tyrell Sea, however, has a pretty much flat, featureless surface, but with pipes having approximately the same size as Lac de Gras. Attawapiskat varies somewhat in magnetics as well with a non-magnetic sedimentary host rock covering the area.

If my targets are diamondiferous kimberlite pipes, then utilising geophysics will cost lots but might provide little in the way of useful diagnostic results. Basically, productive pipes in Canada often/usually have no demonstrable mag, EM, or gravity anomalies; however, drone mag flyovers are new and amazing and inexpensive. A company from Timmins (Zen GeoMap Inc) did a recent magnetometer flyover at a bargain cost (compared to a helicopter survey) with high quality results over two of my targets.

Therefore, I will continue to sample till and report the results. I will continue to look for kimberlite boulders, which although difficult in overgrown, rough terrain, is strong evidence for proximity to a close up-ice pipe. Three samples of kimberlite have been found on my other claims along with one other possible sample. Continued sampling and prospecting is also planned.

Another excellent advantage of the 'Bishop Claims' is location. They are all on high/dry ground. Driveable roads are within a kilometre, year-round roads (including the Trans Canada Hwy 11) are less than 10km distant. Cobalt, one of the most important historical mining communities in Canada, is nearby with its railway system and infrastructure. There is no developed private land adjoining any claim, it's mostly undeveloped Crown land in all directions. Nearby, there are natural gas pipelines (one crosses part of my most westerly claim), one large-scale wind farm, and three hydroelectric plants in the vicinity.

This target and several others like it are in a line close by and to the east of the Cross Lake Fault (as are three diamondiferous kimberlites a short distance to the northwest near Haileybury). This target, as well as some of my others, has a cross fault cutting nearby or through it. This is crucial to the emplacement of a kimberlite and aids in the preservation of diamonds in an ascending kimberlite volcano.

EXPENSES of Cell Claims 337054, 241583, 194992, 241582, & 230056, Resulting from work on Legacy Claim 4282412 for October 21, 2016 – August 17, 2018

Work Type	Units of Work	Cost per Unit of Work	Portion re: 337054	Portion re: 241583	Portion re: 194992	Portion re: 241582	Portion re: 230056	Total Cost
Prospecting/sampling/field supervision May 28, 2017 and Jun 7, 2017	Tony Bishop: 2 days	$500 per day	$250	$375	$125	$125	$125	$1000
Field assistant for traverses May 28, 2017 and Jun 7, 2017	Graeme Bishop: 2 days	$285 per man day	$143	$214	$71	$71	$71	$570
Till sample processing, HMC, separating into multiple size fractions, sorting, microscope picking, interpretation of KIMs and logging results, storage of picked grains & concentrates picked (15 total samples collected – Traverse 1, three samples at 50%)	Tony Bishop: 12 samples + 3 @ 50%	$500 per sample	$2150	$2150	$1150	$650	$650	$6750
Microphotography of select grains & KIMs picked, selection of photos for report from among total grains photographed, labelling & computer storage of microphotos	26 microphotos in report	$5 per microphoto	$26	$26	$26	$26	$26	$130
Sampling plans, report preparations, map compilations, interpretations	Tony Bishop: 4 days	$500 per day	$400	$400	$400	$400	$400	$2000
Selection and mounting of grains for EMP & SEM analysis	Tony Bishop: ½ day	$500 per day	$50	$50	$50	$50	$50	$250
GeoLab EMP & SEM invoice 12021117006	EMP 8 grains	$16.27 per grain (inc. HST) = $130.16	$30	$30	$30	$30	$30	$150
	SEM 2 grains of 35	Prorated 2/35 x $336.18 (inc. HST) = $19.21						
Clerical support for reports & technical computer support	Chloë Bishop Oct 21, 2016 to Aug 17, 2018	$500	$100	$100	$100	$100	$100	$500

EXPENSES of Cell Claims 337054, 241583, 194992, 241582, & 230056, Resulting from work on Legacy Claim 4282412 for October 21, 2016 – August 17, 2018 (continued)

Work Type	Units of Work	Cost per Unit of Work	Portion re: 337054	Portion re: 241583	Portion re: 194992	Portion re: 241582	Portion re: 230056	Total Cost
Office supplies: computer paper & ink. Oct 4, 2017	Northern Lights Comp. $57		$57					$57
Transportation based on OPA OEC rate. May 28 & Jun 7, 2017	2 return trips @ 300 km +313 km = 613 km	$0.50 per km x 613 km	$67	$60	$60	$60	$60	$307
Food re: traverses May 28 & Jun 7, 2017	2 man days	$35 per man day	$14	$14	$14	$14	$14	$70
Total Value of Assessment Work			**$3,287**	**$3,419**	**$2,026**	**$1,526**	**$1,526**	**$11,784**

Appendix 1

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. Some early fur trading and 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 or around 1904 (which was subsequently tested and confirmed and cut into gemstones by Tiffany’s), but became overshadowed by the vastly rich silver discoveries of the day (for detailed information on the ‘Nipissing Diamond’, please refer to Bishop, B.A. (2018a)). Soil sampling and geophysics by companies like Cabo, Tres-Or Resources Ltd., DeBeers, and others in addition to exploration by the Ontario Geological Survey, uncovered more than 50 known kimberlite pipes, 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.

Appendix 2

Structural Geology

"Kimberlite intrusions tend to occur in clusters or fields, with the large-scale distribution possibly controlled by deep seated structural features and local emplacement by shallow zones of weakness such as faults or the margins of diabase dykes." (Power & Hildes, 2007, p 1025)

The claim is near intrusives including contacts of the diabase sills which are specifically noted as priority targets for silver where favourable mineralization is found within 150 metres of the contact. Although silver/cobalt is not our primary mineral of interest, there is good potential for locating this type of mineralization.

The claim is well situated within the Lake Temiskaming Structural Zone (LTSZ) which is known as host for a large number of diamond projects undertaken by a number of notable explorers and Public Junior Mining Companies. Locally over a dozen kimberlite pipes and lamprophyres, many diamondiferous, have been found mainly by testing magnetic anomalies. But, as is now well accepted, many of the most highly diamondiferous kimberlite pipes found and continuing to be found in Canada are not detectable by mag or often by EM. Gravity can be useful in these cases but often companies are now returning to high KIM results in till and stream samples and then looking for visual round pipe-sized anomalies, either as lakes or circular depressions in the topography.

A key feature of a number of significant projects within the LTSZ is the Cross Lake Fault. Locally, this deep, regional fault is in close proximity to the west of the claim, approximately 1km away.

Publicly available OGS Geophysical Data and subsequent correlations were instrumental in the decision to stake this land given a high probability of its potential for diamonds and other mineral occurrences. This information was related to products released by the Ontario Geological Society. Lorrain & Gillies Limit have ideal conditions for kimberlite/diamond exploration.

The claim has conjugate, perpendicular structures relating to the Cross Lake Fault and such structures are proven to bear diamondiferous kimberlite pipes in the New Liskeard Kimberlite Field, especially on the east side of the Cross Lake Fault where the pipes are higher in diamond grade in the New Liskeard Area.

The Cross Lake Fault dips steeply to a great depth. This would provide an easy method of transport for an ascending kimberlite and would also allow for faster ascension which is necessary for diamond preservation. This is demonstrated in the New Liskeard area pipes, where the three pipes, Bucke, Gravel, and Peddie, on the east side of the fault are all more highly diamondiferous than the many known pipes on the west side of the fault.

Eight of my kimberlite targets are on the east side of the Cross Lake Fault, very close to the same distance away from the fault as these three pipes in New Liskeard and there are cross faults near or through all of these.

As well, the nature of the rugged Archean terrain of the Lorrain Batholith is important to the diamond potential. The Granite and Diabase are both very hard and when fractured it is reasonable to infer that they are deeply fractured just as the Cross Lake Fault is a deep, regional fracture, which is still active today as part of the Ottawa-Bonnechere Graben System.

As a result, the claims' location within diabase and nearby the Lorrain Granite Batholith offers a prime setting to allow for Kimberlite Material to transport readily to surface and allow for better preservation of diamondiferous kimberlites. Glacial erosion would have been limited owing to the hardness of the rock when compared to softer terrains. This may allow for a preservation of a greater volume of pipe than those discovered in glacially eroded terrains. Rapid transportation of diamond bearing magma is essential to the preservation of diamond stability during transport.

Adapted in part from Prairie C – The Lorrain Batholith Project
http://www.geocities.ws/Eureka/Account/6322/PcProprt.html

Appendix 3

Map Appendix Overview

MAP 1: Claim Location (MLAS Map Viewer)

MAP 2: Road Access (Google Earth)

MAP 3: Geological Compilation (portion of Ontario Geological Survey Map 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 (base topo map used for plotting glacial striae was published by Department of Energy, Mines, & Resources, Map 31 M5, 1983)

MAP 7: Down-ice Sampling Area, Old & New

MAP 8: Sampling Area, Old & New, Down-ice View from Peanut Lake (Google Earth)

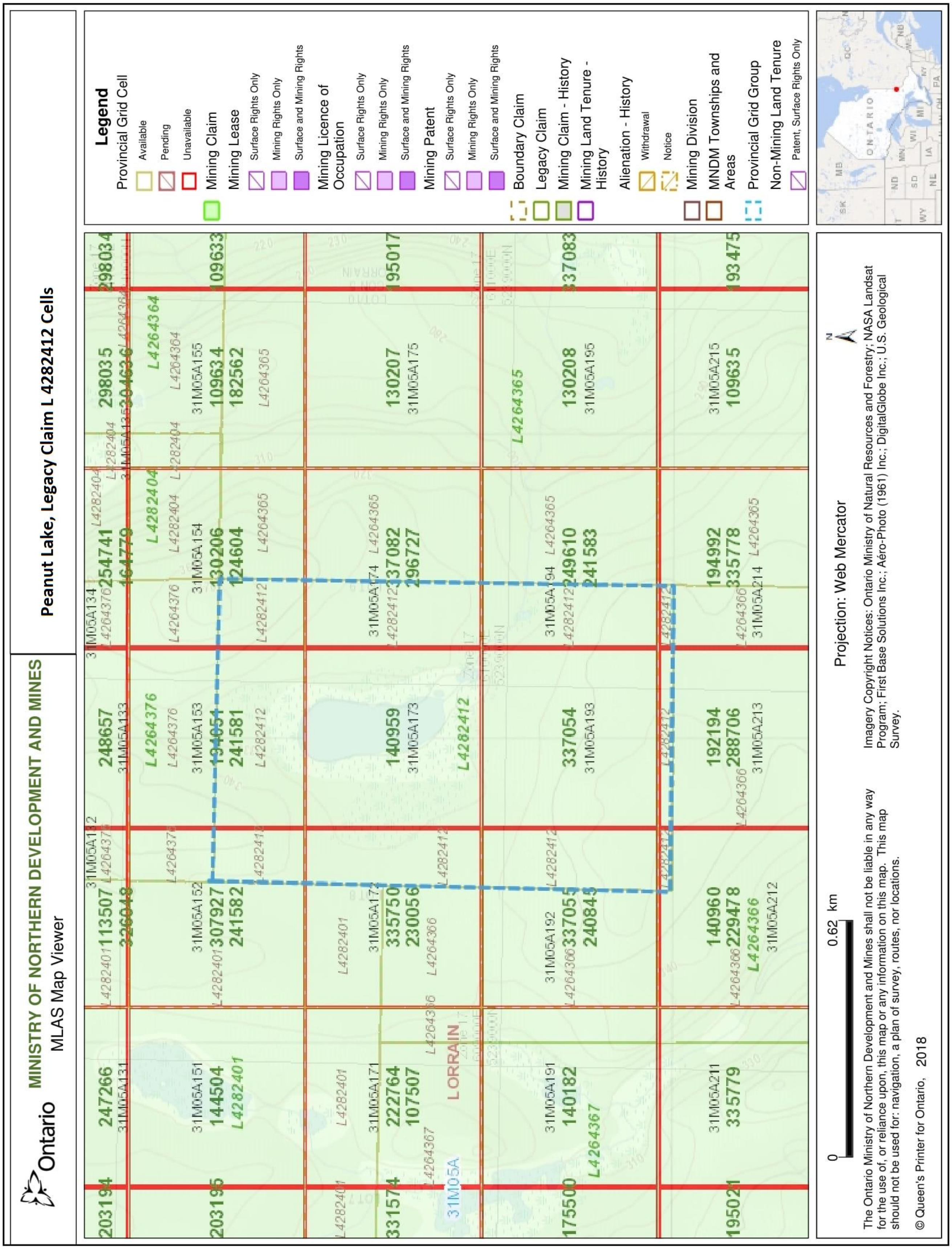
MAP 9: Lake Temiskaming Structural Zone (from OGS OFR 6088)

MAP 10: Detailed Local Faults (base topo map used for plotting local faults was published by Department of Energy, Mines, & Resources, Map 31 M5, 1983)

Map 11: Down-ice glacial direction – tilted view (Google Earth)

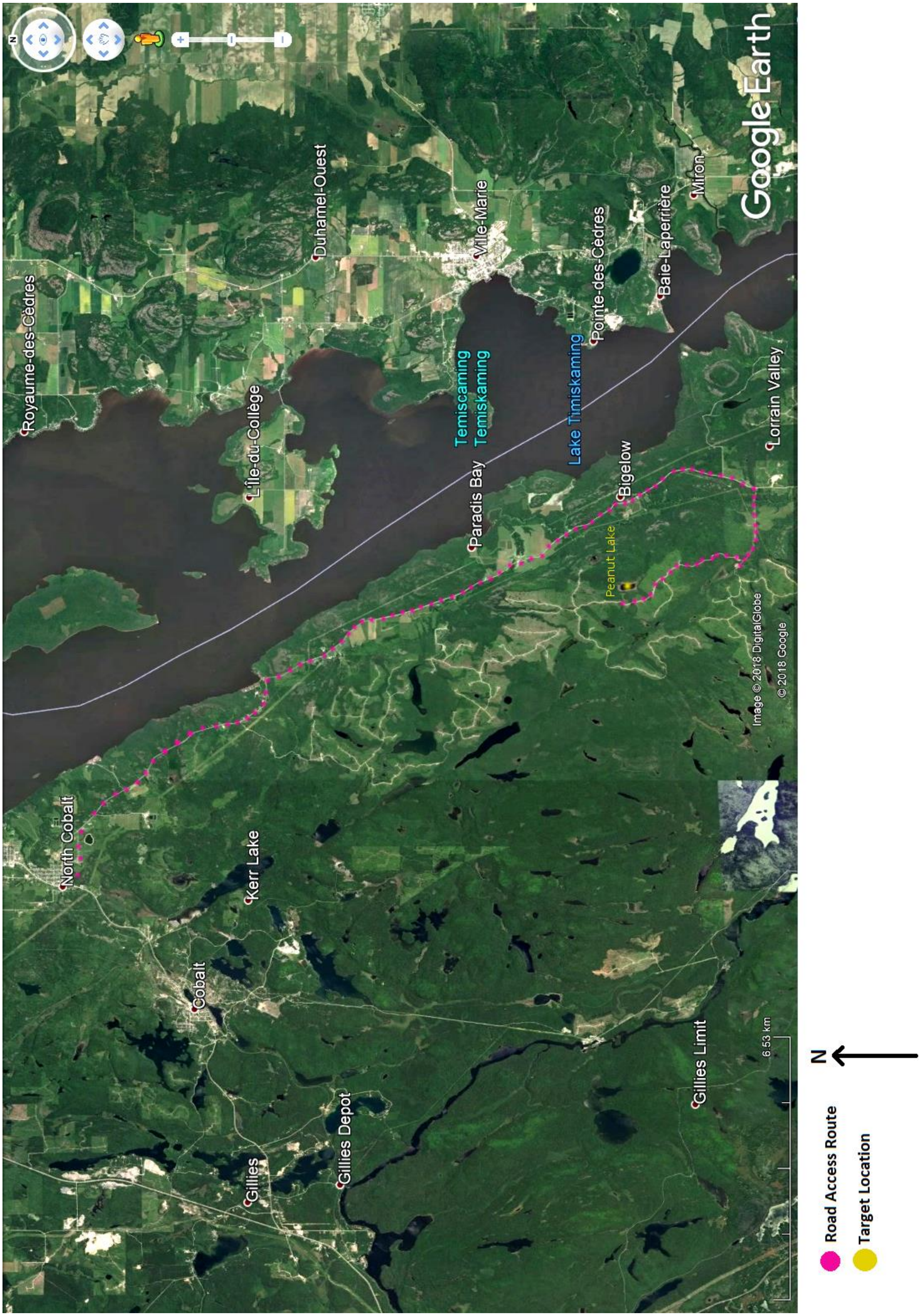
Map 12: Straight-down view of Peanut Lake (Google Earth)

Appendix 3



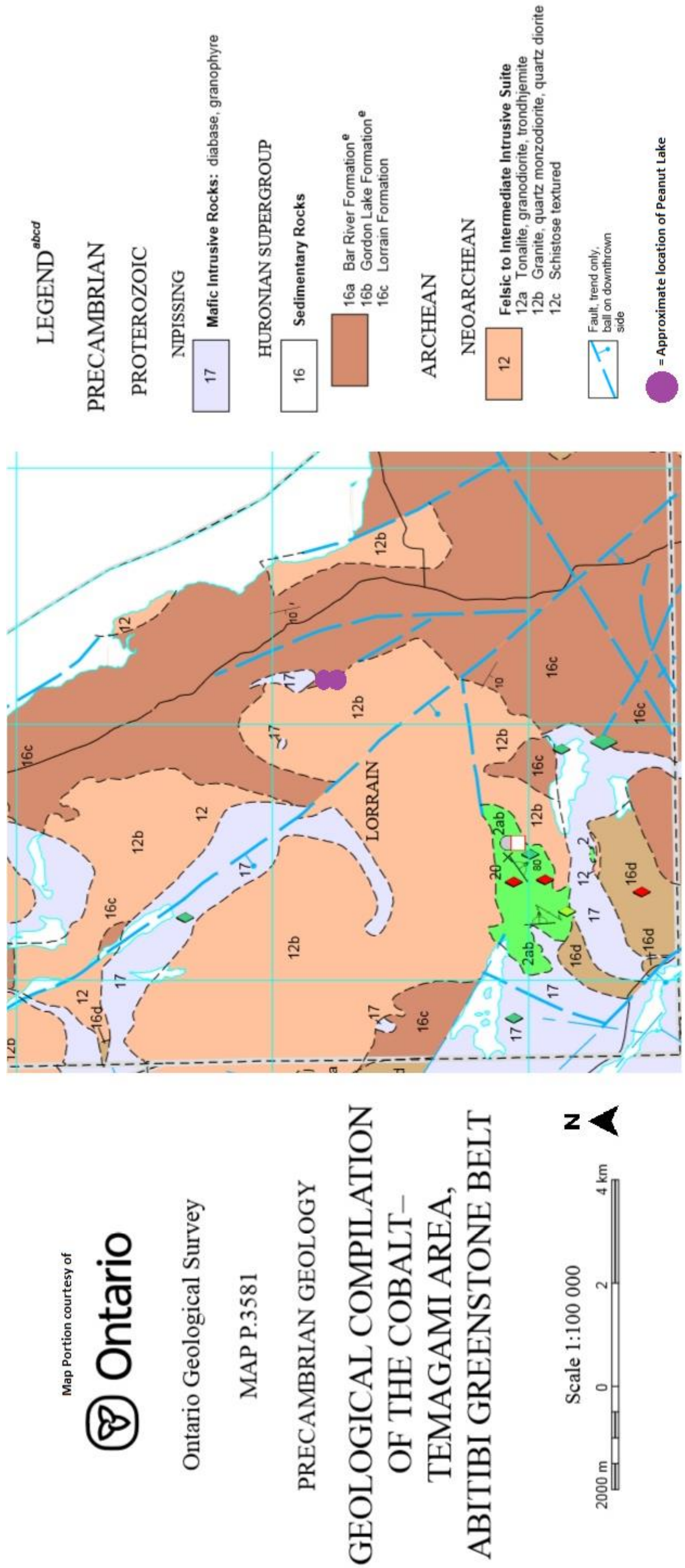
Map 1 - Claim Location (MLAS Map Viewer)

Appendix 3



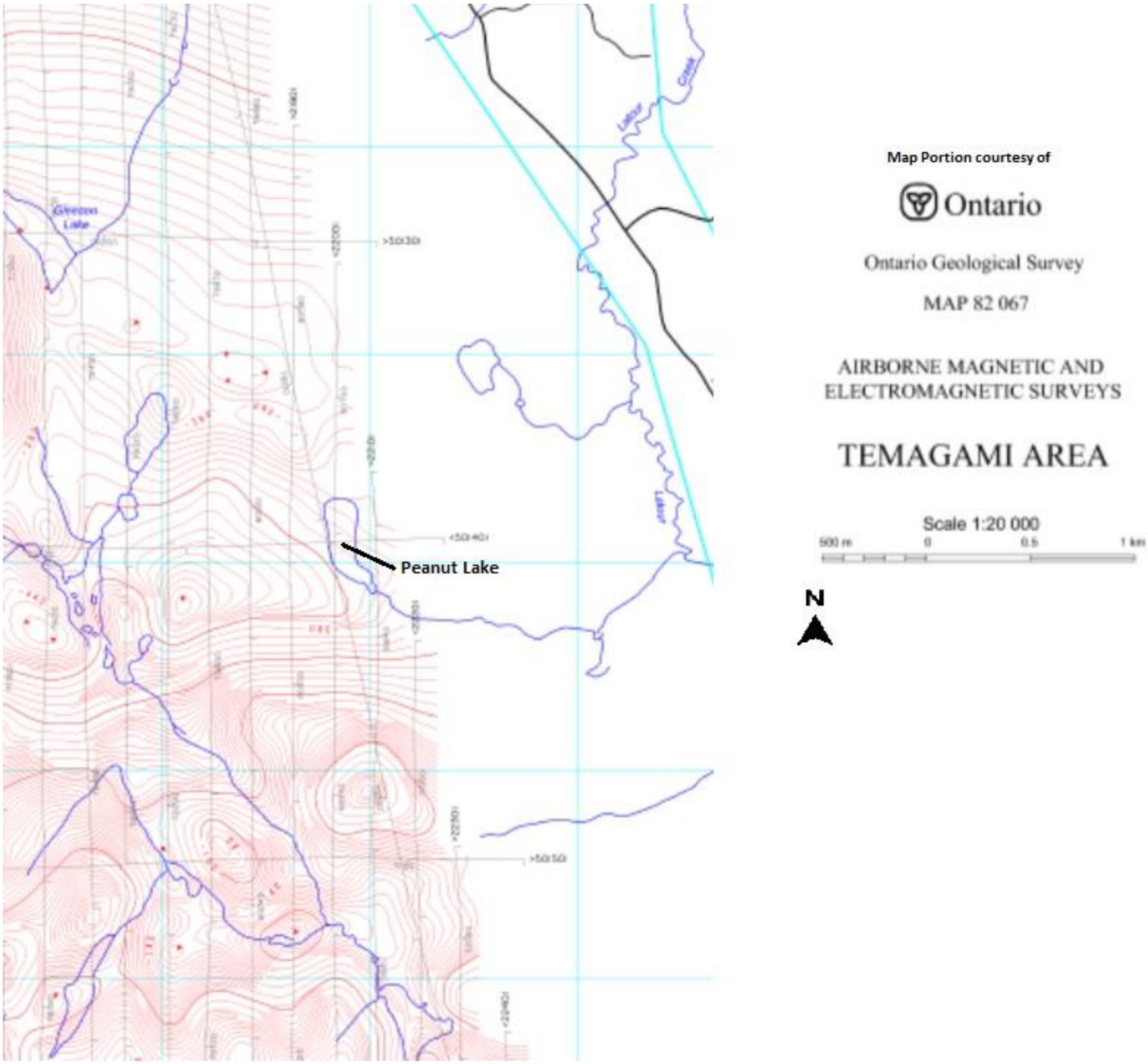
Map 2 - Road Access (Google Earth)

Appendix 3



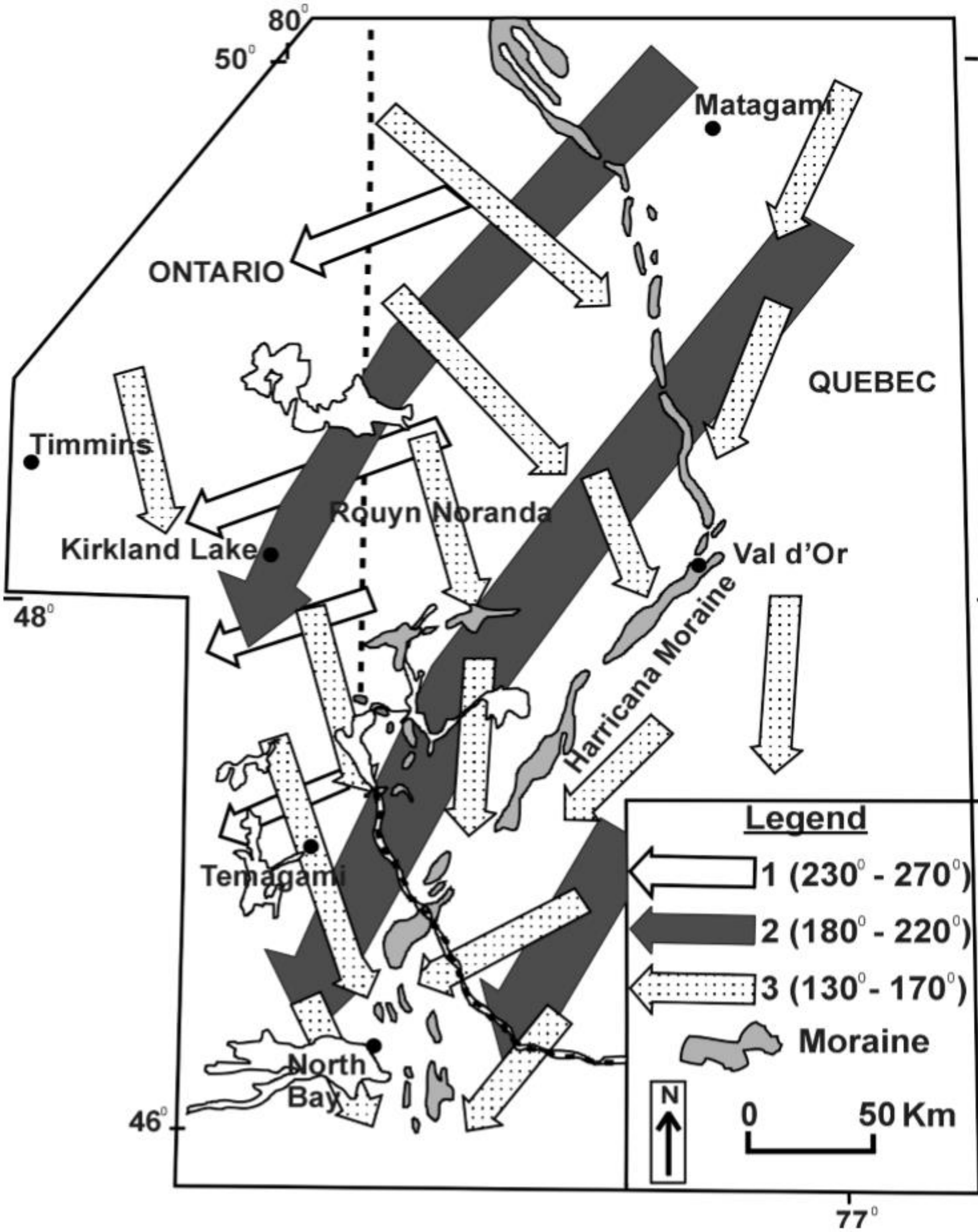
Map 3 - Geological Compilation (portion of Ontario Geological Survey Map P 3581)

Appendix 3



Map 4 - Mag Map (portion of OGS Map 82 067)

Appendix 3

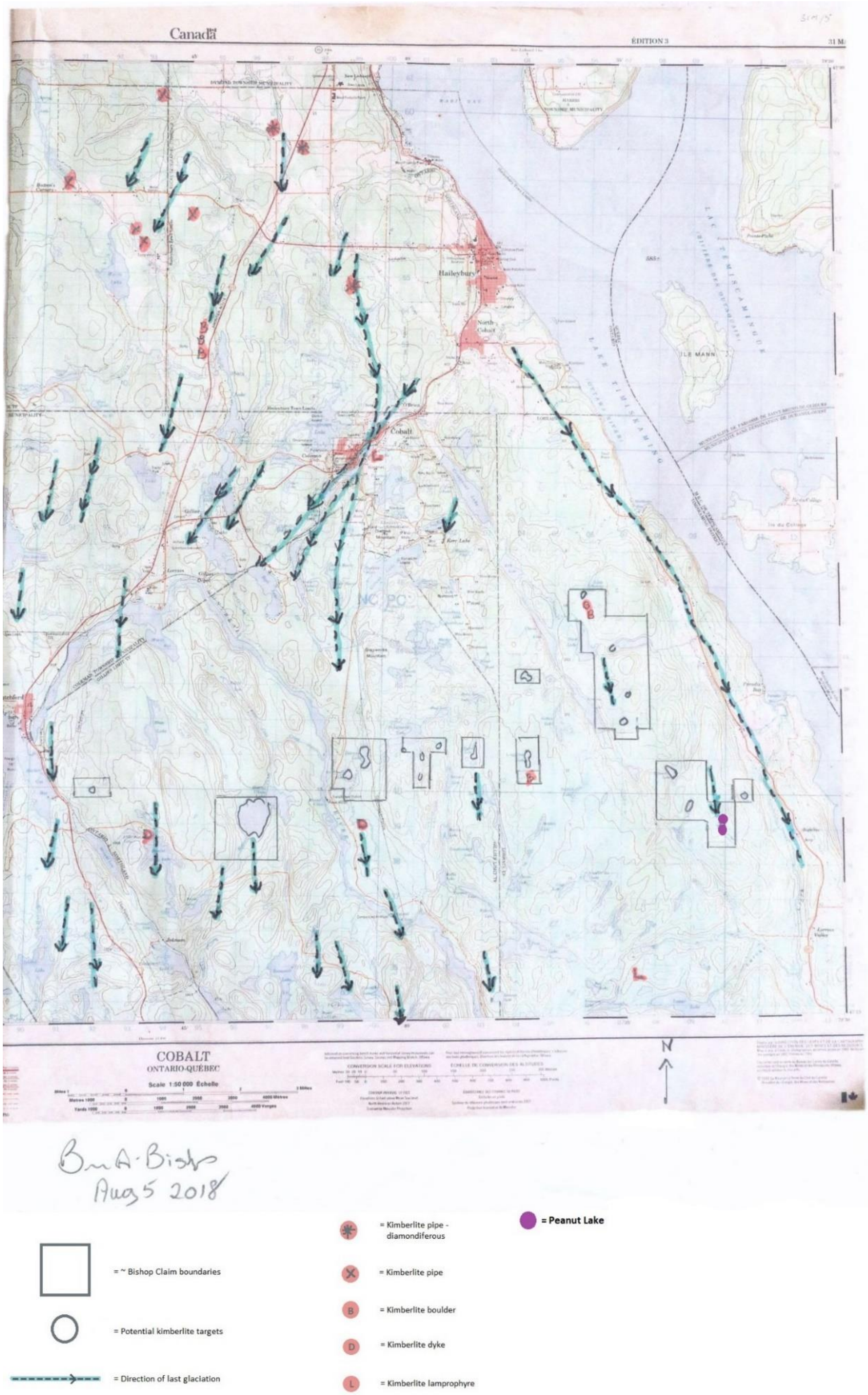


Ice flow movement in the Abitibi-Temiskaming area. The oldest ice flow event is the number 1 movement, the youngest the number 3 movement (after Veillette 1986).

Used courtesy of
Ontario Geological Survey
Open File Report 6088

Map 5 - Ice Flow Movement (from OGS OFR 6088)

Appendix 3

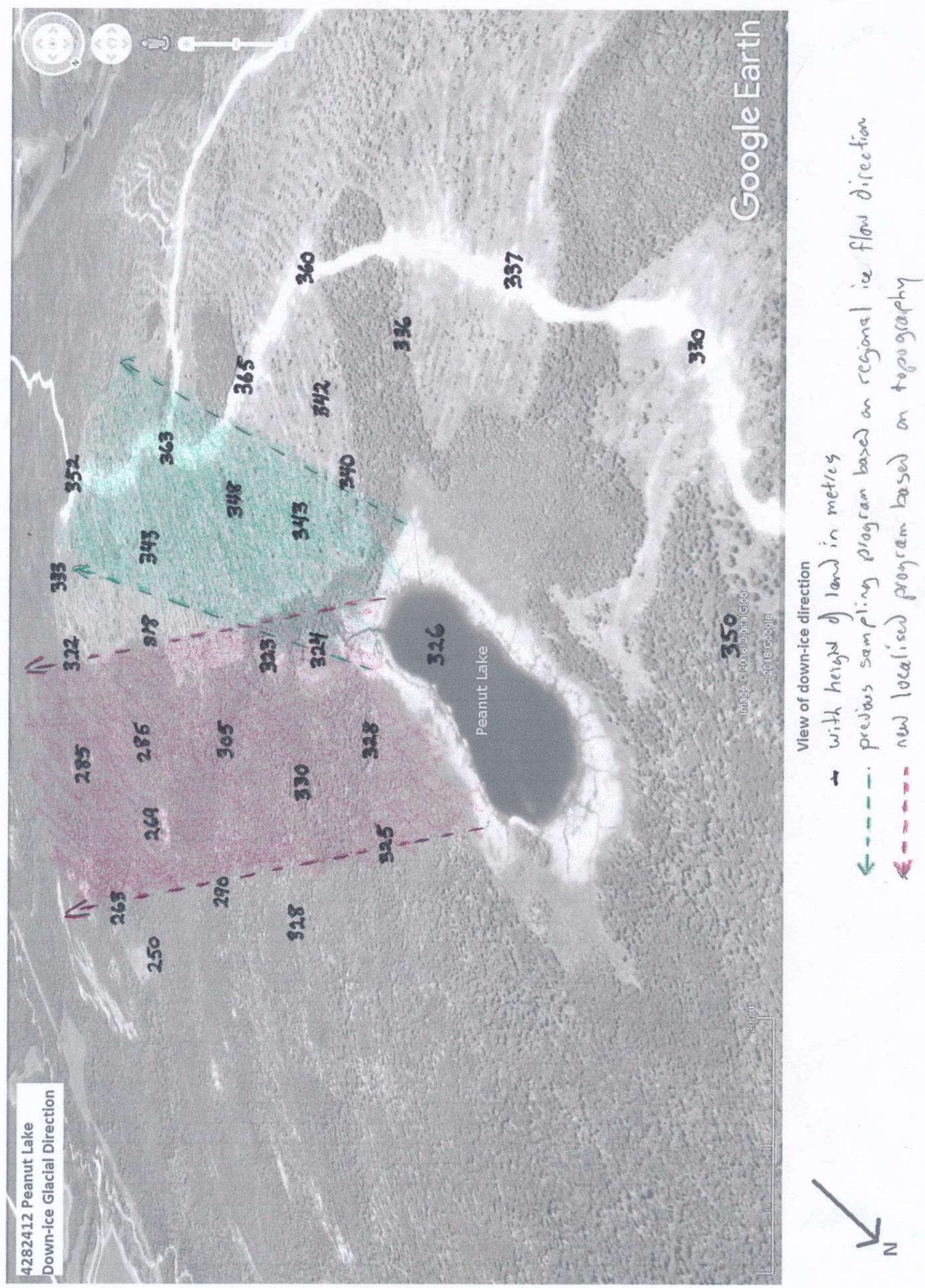


Map 6 - Local Glacial Flow Direction (base topo map used for plotting glacial striae was published by Department of Energy, Mines, & Resources, Map 31 M5, 1983)

Appendix 3

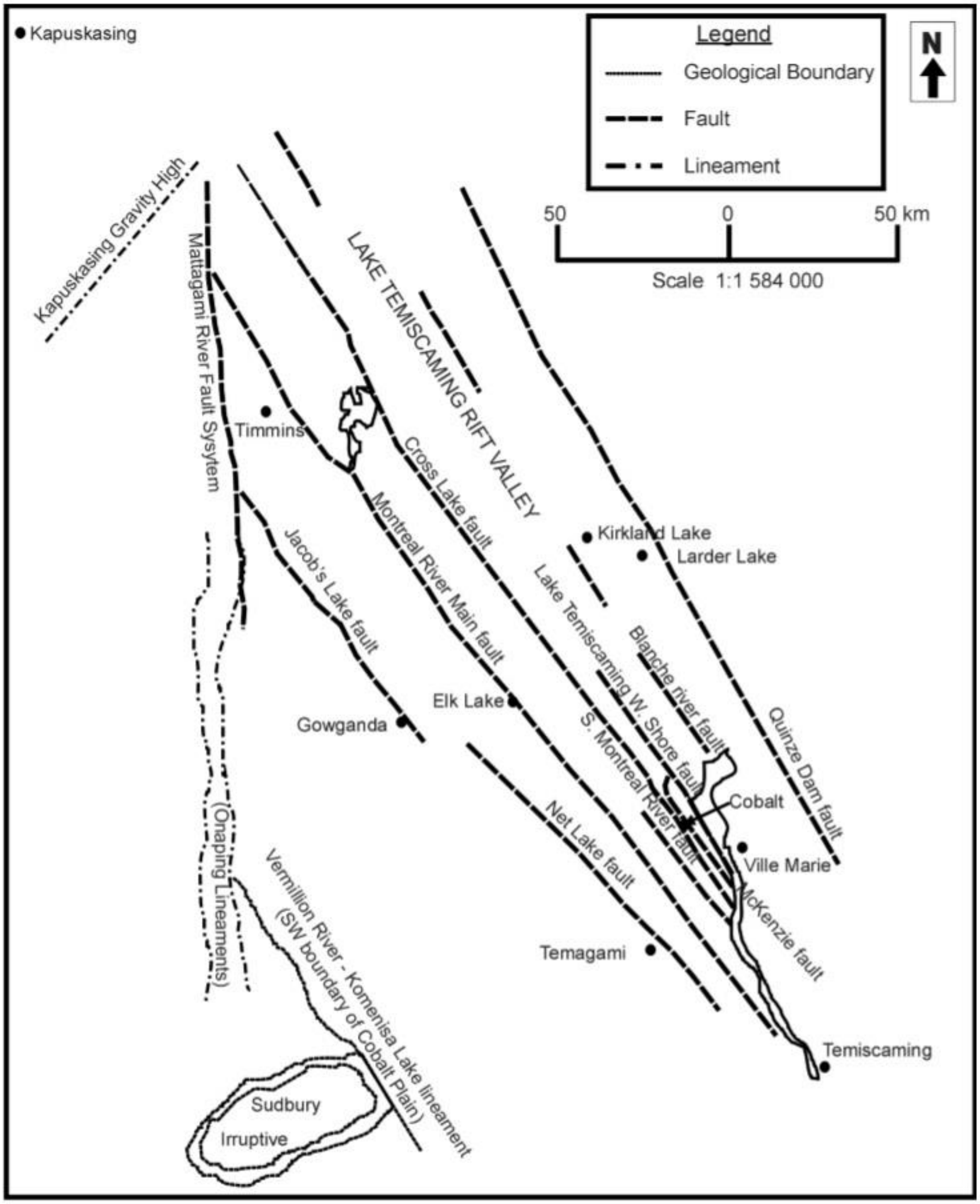
Map 7 - Down-ice Sampling Area, Old & New

Appendix 3



Map 8 - Sampling Area, Old & New, Down-ice View from Peanut Lake (Google Earth)

Appendix 3

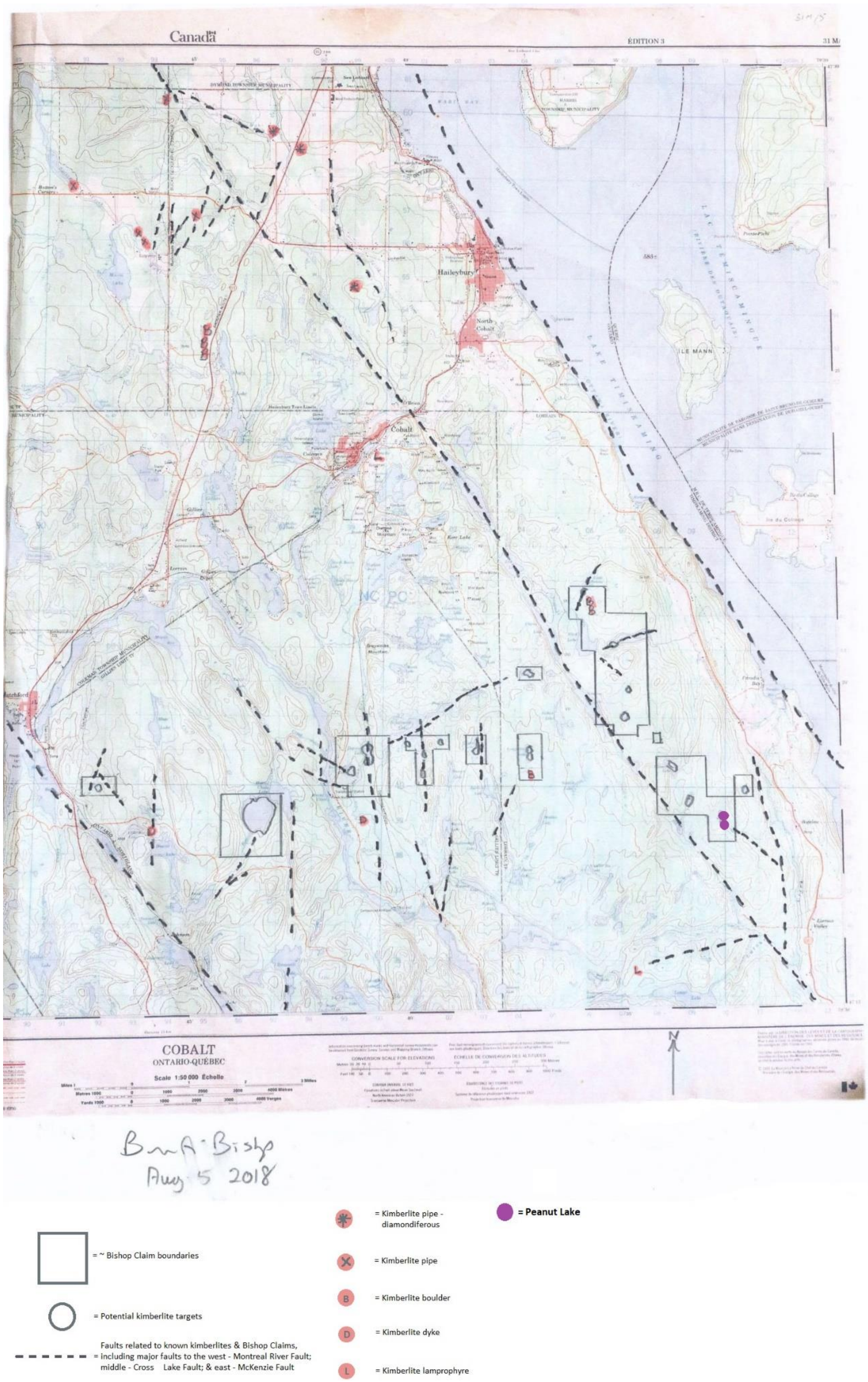


The Lake Temiskaming Rift Valley (also known as the Lake Temiskaming Structural Zone) (after Lovell and Caine 1970).

Used courtesy of
Ontario Geological Survey
Open File Report 6088

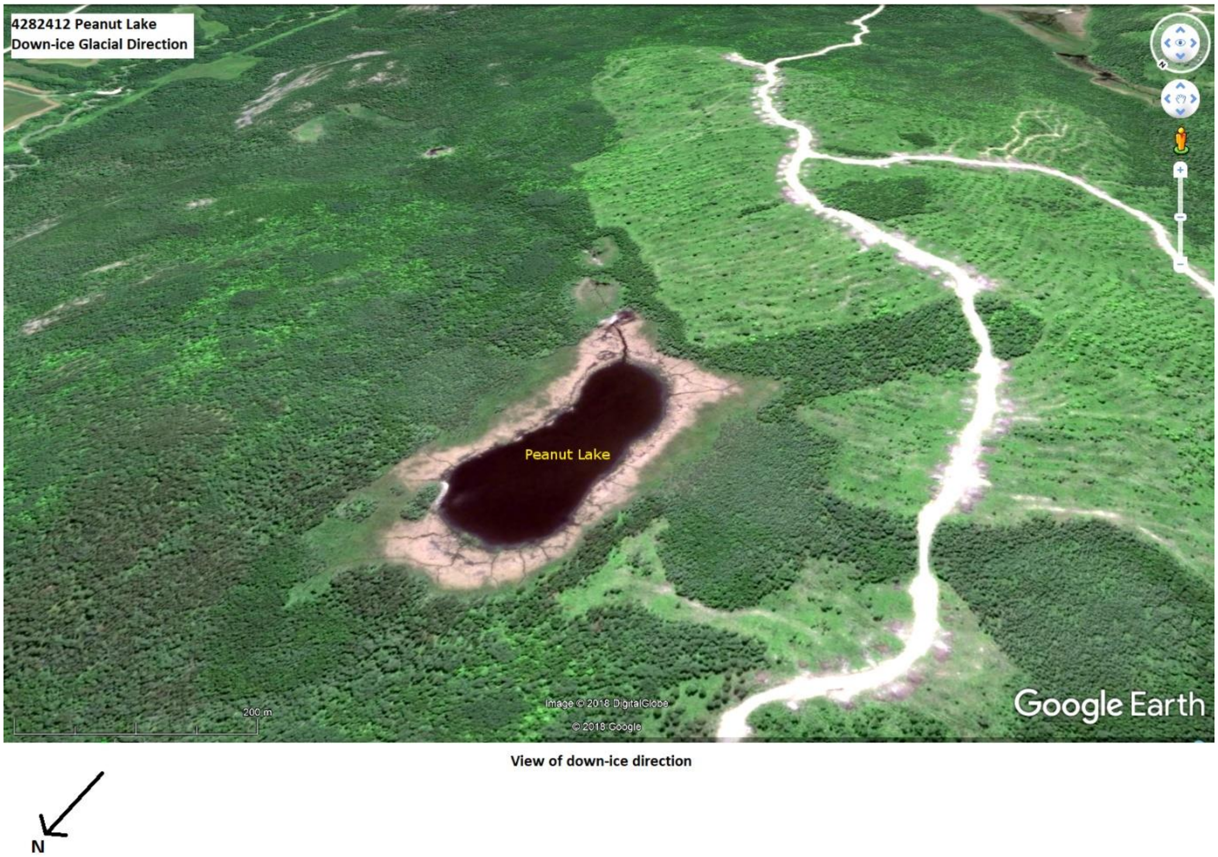
Map 9 - Lake Temiskaming Structural Zone (from OGS OFR 6088)

Appendix 3

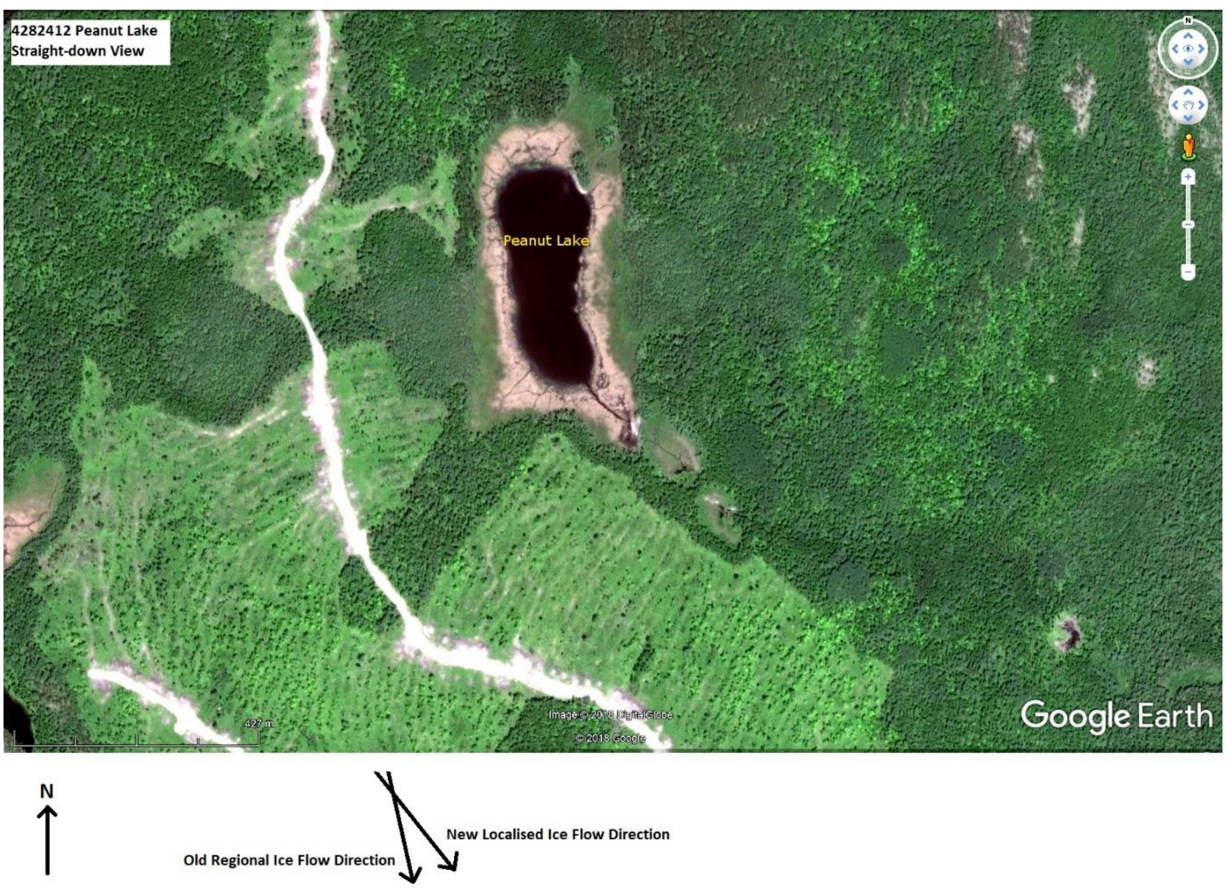


Map 10 - Detailed Local Faults (base topo map used for plotting local faults was published by Department of Energy, Mines, & Resources, Map 31 M5, 1983)

Appendix 3



Map 11 - Down-ice glacial direction – tilted view (Google Earth)



Map 12 - Straight-down view of Peanut Lake (Google Earth)

Appendix 4

Traverses Appendix Overview

TRAVERSE 1: May 28, 2017 – Fieldwork, Map, & Field Notes

TRAVERSE 2: June 7, 2017 – Fieldwork, Map, & Field Notes

Appendix 4

FIELDWORK: Please refer to Appendix 5 for Methodologies for Field Work and Till Sample Processing

L 4282412

Traverse 1: fieldwork

May 28, 2017 Brian A. (Tony) Bishop, Graeme Bishop

Traverse 1 was a combined prospecting trip for kimberlite and any interesting minerals. Although primary focus is for kimberlite indicators, there is also potential for other metals/minerals because of the geology and proximity to the rich cobalt/silver area.

From the truck we traversed approximately northeast to the claim line and generally followed the claim line to WP1. Graeme and I walked roughly 20-30 metres apart to cover more ground while prospecting, generally within calling distance.

No kimberlite was found on this traverse, although many rocks and boulders were visually checked.

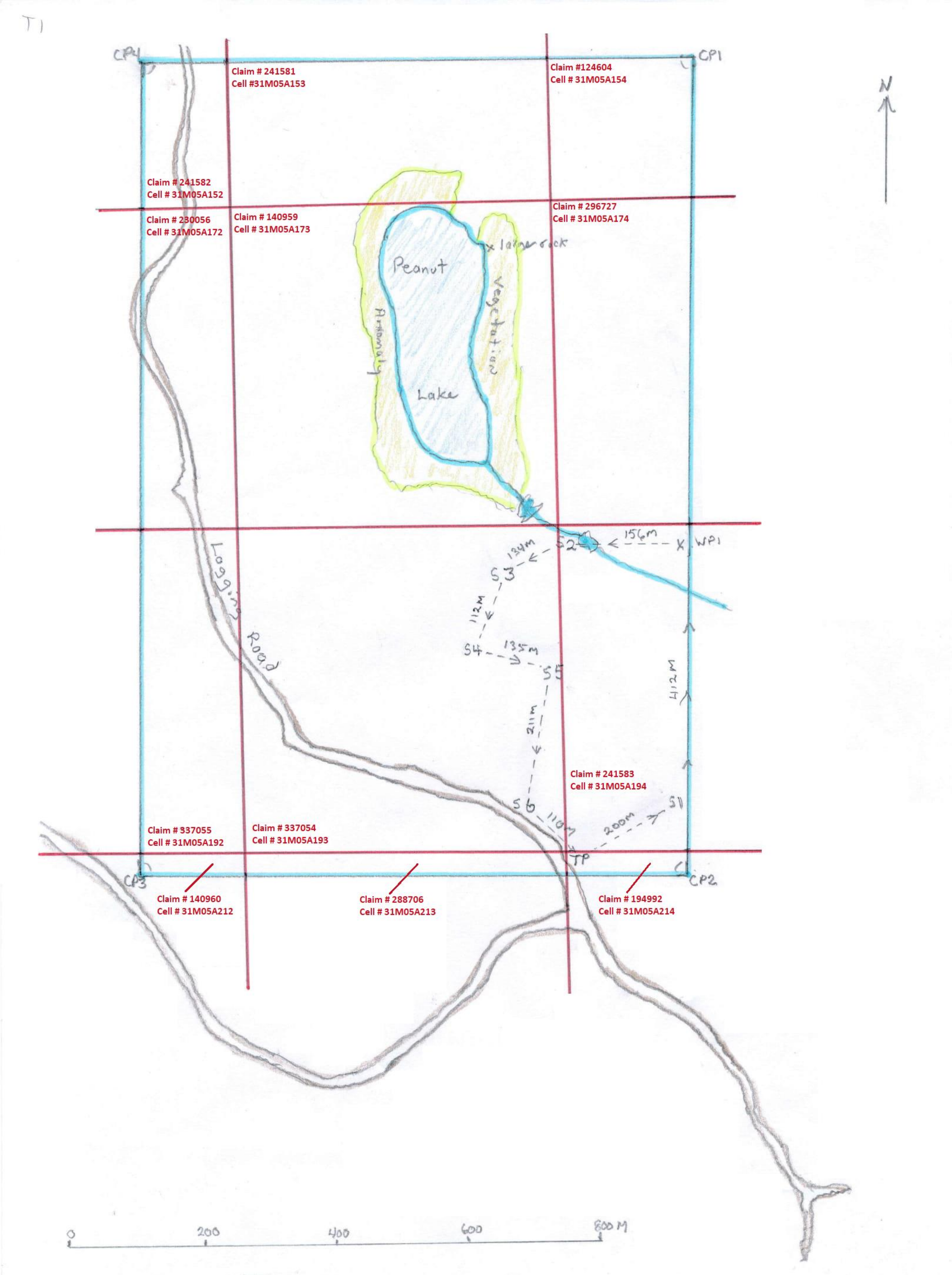
Four till samples were collected in the field with a fifth near the road.

One alluvium sample (T1S2) was recovered from a small creek, approximately 200m southeast of the south end of Peanut Lake.

Appendix 4

L 4282412

Traverse 1: map May 28, 2017 Brian A. (Tony) Bishop, Graeme Bishop



Appendix 4

L 4282412

Traverse 1: field notes

May 28, 2017

Brian A. (Tony) Bishop, Graeme Bishop

Sample #	Coordinates 17T UTM	Weight (kg)	Elevation (m)	Activity/Description
T1S1	0610254_E 5238668_N	4.1	347	Sand, gravelly rocks
T1S2	0610113_E 5239049_N	3.6 (wet)	324	Not screened, small, low-flow creek, sample taken down-flow of large rock.
T1S3	0610022_E 5239002_N	2.5	336	At edge of boulder field, sand/gravel/boulders
T1S4	0609958_E 5238888_N	3.2	348	Large boulder field, rising elevation to the west
T1S5	0610080_E 5238856_N	3.4	341	Similar to T1S4
T1S6	0610046_E 5238648_N	2.7	356	Till, gravel-sand

Location #	Coordinates 17T UTM
Truck Park	0610130_E x 5238573_N
WP1	0610273_E x 5239053_N
CP1	0610270_E x 5239760_N
CP2	0610270_E x 5238560_N
CP3	0609470_E x 5238560_N
CP4	0609470_E x 5239760_N

Claim #	Grid Cell ID
337054	31M05A193
241583	31M05A194

Appendix 4

L 4282412

Traverse 2: fieldwork June 7, 2017 Brian A. (Tony) Bishop, Graeme Bishop

A second prospecting and sampling trip was planned to cover the area nearer to the southwest corner of the claim not covered by Traverse 1. Many boulders were inspected while looking for kimberlite, this consisted of scraping moss and chipping pieces of the rock with a rock hammer. The land here is hilly with an overall gradual upslope to the west, with many large and smaller well-worn boulders. Difficult terrain to prospect.

Four till samples were gathered at suitable locations along with GPS coordinates, height of land, time of day, and other field notes. At the end of the day, two off-ice till samples were also taken in the northwest corner of the claim and three till samples at a greater distance down-ice from the lake near the road.

Starting at the truck (TP), Graeme and I headed in the general direction of claim post #2, where T2S1 was bagged. From there we headed roughly northwest, keeping separated by ~20 to 30m to T2S2. We then headed north in the same pattern to T2S3. We then prospected in a meandering path back to the truck. T2S4 was taken just south of the truck near the road.

We then drove to the northwest corner of the claim and took two off-ice samples, T2S5 and T2S6 near the road. From there three more till samples were recovered near the road in sandy, gravelly, bouldery till at suitable locations.

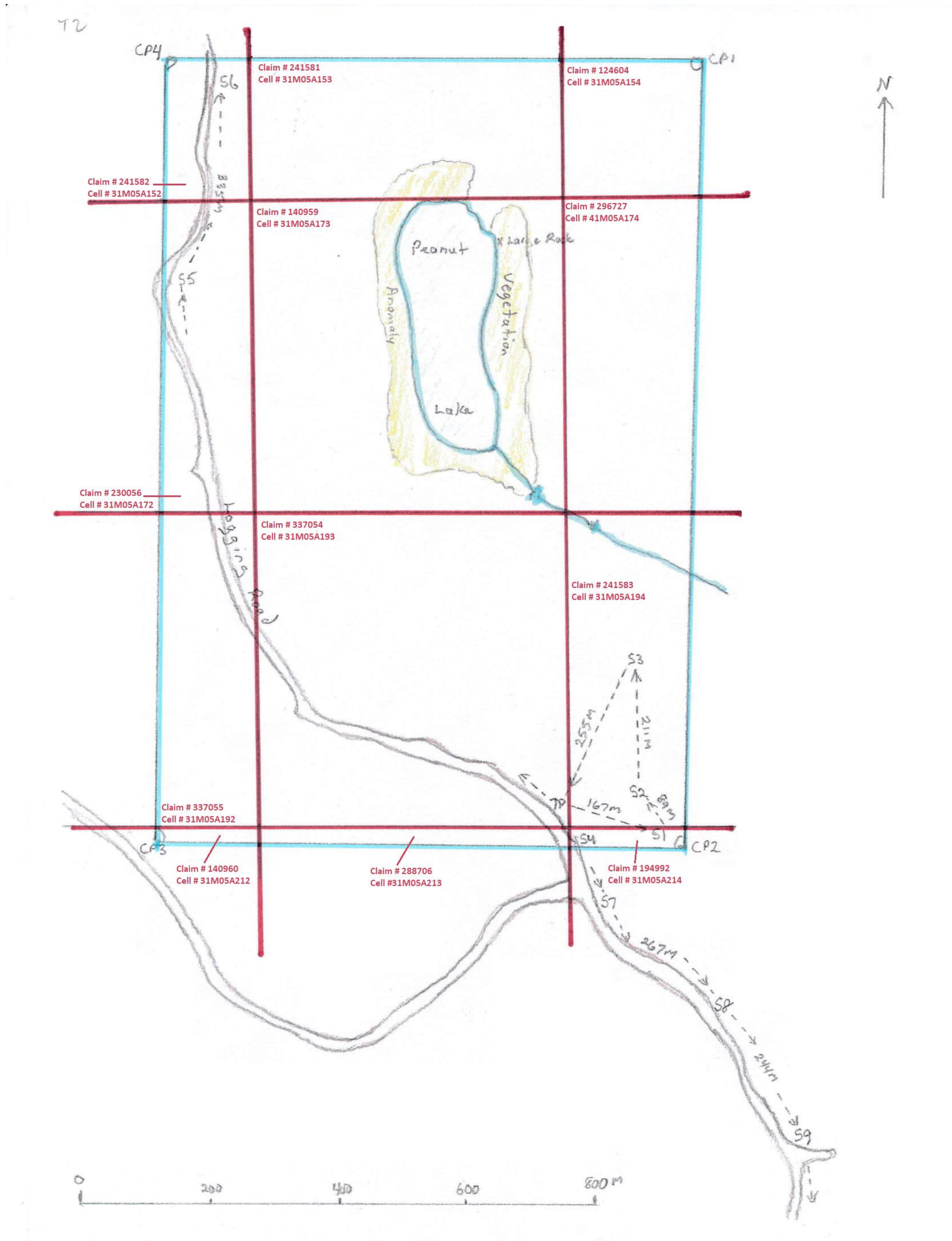
Appendix 4

L 4282412

Traverse 2: map

June 7, 2017

Brian A. (Tony) Bishop, Graeme Bishop



Appendix 4

L 4282412

Traverse 2: field notes June 7, 2017 Brian A. (Tony) Bishop, Graeme Bishop

Sample #	Coordinates 17T UTM	Weight (kg)	Elevation (m)	Activity/Description
T1S1	0610259_E 5238570_N	1.1	352	Sandy/rocky till
T1S2	0610210_E 5238647_N	2.9	352	Under a blown down tree root
T1S3	0610196_E 5238848_N	3.6	332	Somewhat boulder-covered, dug on south end of large boulder
T1S4	0610125_E 5238558_N	4.1	360	Sandy, gravel till
T1S5	0609488_E 5239397_N	2.7	332	Sandy, gravel till
T1S6	0609527_E 5239717_N	2.9	342	Sandy gravel till
T1S7	0610171_E 5238465_N	3.6	363	Sandy, gravel till
T1S8	0610355_E 5238313_N	3.2	353	Lower trough east-west, sand, gravel
T1S9	0610486_E 5238125_N	4.1	352	Dug out area, sandy, gravel till

Location #	Coordinates 17T UTM
Truck Park	0610130_E x 5238573_N
CP1	0610270_E x 5239760_N
CP2	0610270_E x 5238560_N
CP3	0609470_E x 5238560_N
CP4	0609470_E x 5239760_N

Claim #	Grid Cell ID
241583	31M05A194
194992	31M05A214
230056	31M05A172
241582	31M05A152

Appendix 5

Methodologies for Field Work and Till Sample Processing

PREFACE:

Diamond exploration is unlike that for any other mineral resource. Search areas are ‘limited’ to ancient ‘cratons’ (such as the ‘Canadian Shield’) which in themselves are vast areas. Geological maps are, in a general sense, of little to no use, as economic kimberlite pipes, relatively small circular to semi-circular, vertical volcanoes, when found may have no direct correlation to local rock types, although locating faults and contacts between different rock types, such as granite/diabase, can be very useful once a kimberlite field has been located by geophysics or till sampling.

Locating a pipe is largely a matter of detective work. Typically, mag maps have been utilized in the search for magnetic ‘bulls-eyes’ which are then, as funds permit, drilled to see if it is kimberlite or some other magnetic target. **However, in Canada so far most of the production pipes have little to no magnetic signature**. As well, EM surveys often don’t work for the same reason, as is also true of gravity surveys (i.e. no detectible mag, EM, or gravity anomaly). [See Appendix 3]

Soil sampling, either in till or streams, is the simplest and most common method of looking for kimberlites. In fact, though, the search is not directly for diamonds but for kimberlite indicator minerals (KIMs), which include certain garnets, chrome diopsides, ilmenites, chromites, zircons and others.

Stream sediment surveys are for larger scale drainage basins to initially locate KIMs. Till sampling should be then utilized to best zero in on a pipe’s location.

These grains must be separated by utilizing their slightly greater specific gravity (SG) compared to most other minerals in the ‘soil’ samples. However, these grains are generally only 0.25mm to 2.0mm in diameter. This, and the very slightest difference in SG, make it very difficult to concentrate and recognize and pick KIMs from. Basically, commercial-grade microscopes, tweezers, and concentrators must be acquired at great initial cost with trained operators.

As a result, most exploration companies utilize a dedicated lab at a cost of $500 and up per sample for concentrating, visual identification and estimate of KIM grain numbers.

Old-fashioned gold panning for KIMs as one would with gold grains is next to impossible: gold has a specific gravity (SG) of ~20 and therefore is roughly 7 times heavier than the other soil and rocks in a sample. KIMs have an SG 3.3 to 4.3, only very slightly (i.e. <1.4 times) more than most other grains in a field sample. (Common non-KIMs have an SG of ~2.6 to 2.9). As well, size matters. Even experienced individuals can have trouble with separating gold grains the size of KIMs from till or stream gravels, and one basically cannot pan gold this size out of ‘black sands’, i.e. magnetite. Magnetite (SG of 5.2) is commonly found in kimberlites and hence is also found with KIMs, further complicating concentration of a sample, as magnetite is actually heavier.

Specific Gravities			
	Gold	-	19.3
(KIM)	Magnetite	-	5.2
(KIM)	Zircon	-	4.6-4.8
(KIM)	Ilmenite	-	4.3
(KIM)	Garnet	-	3.5-4.3
(KIM)	Pyrope	-	3.56
(KIM)	Diamond	-	3.52
(KIM)	Cr. Diopside	-	3.3
(KIM)	Olivine	-	3.3
	Mica	-	2.9
	Dolomite	-	2.85
	Conglomerate	-	2.8
	Gabbro	-	2.8
	Calcite	-	2.7
	Granite	-	2.7
	Quartz	<=	2.65
	Feldspar	-	2.6
	Clay	-	2.2

With the right equipment however, an individual with some background, specifically in placer-type deposits, can concentrate and pick KIMs from till samples.

To further complicate issues, due to a number of glaciations in Canada in different directions, samples must be taken from tens of metres to several kilometres down-ice (usually along the last glacial direction) of the potential kimberlite source. This requires the bulk of meaningful sampling to be done off claim, sometimes a long way off claim, which then cannot be applied for assessment work to maintain that claim in good standing. Direct sampling of a kimberlite target is only accomplished by bulk sampling with a large diamond drilling program, or if near surface, directly with heavy machinery (both very costly and permit-intensive).

These initial obstacles can only be overcome by a lone prospector with determination, knowledge, the use of a collection of specialized and costly equipment, and lots of time (and patience). Even for established commercial labs the bulk of the time and cost comes down to an individual meticulously picking KIMs with a pair of tweezers while viewing the concentrates from a sample under a microscope. This lengthy time-consuming process is such that if large numbers of indicators are encountered, only a portion of the sample is picked for KIMs in a lab and then averaged (i.e. ‘guesstimated’) to the full sample, possibly risking losing the few/any all-important G10s and other similar grains in the remaining portion.

METHODOLOGY/OVERVIEW OF FIELD WORK & TILL SAMPLE COLLECTION:

Standard 38cm x 28cm sample bags are used for collecting till samples. Small shovels are used to dig a 1' to 3' deep hole below the humus line and the bags filled ½ to ⅔ full, taped shut, and labelled. When possible, the sample is screened through a 4-mesh screen (typically just creek samples), or if not, then larger rocks and roots are removed by hand. If a sample site is very near to the transport vehicle I just remove larger cobbles and take a larger sample to be screened later, before concentrating. In between samples the equipment is cleaned as well as possible to avoid cross-contamination. GPS coordinates are taken at each sample site and then recorded if not matching the prechosen map coordinates.

The base of logging roads is basically composed of till collected immediately adjacent to the road as it is constructed. This makes for a very useful till sampling location, namely the area beside the road where the heavy machinery dug down from several to 10+ feet deep. This creates the possibility to collect from a number of horizons at various locations without mechanized equipment, thereby increasing the possibility of finding KIMs.

Whereas most approaches initially involve a regional sampling survey and then trace up-ice to the possible target, I start with identifying a potential target based on structural, glacial, landscape features, and publicly available OGS reports. I then take multiple samples to determine the likelihood of my target hypothesis, down-ice and off-ice for comparison.

My intent is basically to determine kimberlite pipe/or not a kimberlite pipe, based on a visual identification and number of KIMs picked from my till sample concentrates, and EMP analysis of an affordable minimal # of grains selected and sent for lab analysis. Interestingly, a number of exploration companies as well as ODM in Nepean have stated (within the last 5 years) that visually picked KIM grains and total number of KIMs are their criteria for continued interest in an area rather than analysis of grains. ODM said recently in an email that most companies have been adopting this approach (from personal research it also appears that many of the most successful companies at finding new discoveries of diamondiferous kimberlite pipes now are looking for non- to low-mag and EM targets utilizing gravity surveys, which do not always produce usable results, and finally results in till sampling for KIMs as the primary prospecting tool), especially in a region with known kimberlites.

In their sampling programs, OGS Open File Reports on Alluvium Sampling Surveys recommend creek samples for a far more pre-concentrated material for heavy minerals including KIMs (not for some distance down-ice/water flow of a lake due to its being a heavy mineral trap), and so recommend to "maximise the distance between the sample site and the lake", so I then thought that this is not true if the lake (heavy trap) is the source of KIMs. Large distances between sample spacing and large 10-30kg samples however, are more applicable to doing regional surveys while hunting for a 'target', i.e. in this case a kimberlite pipe. Also, creeks are rarely conveniently placed directly down-ice of a pipe-sized target (in Canada typically 50-200m in diameter) and they concentrate material from a large area, so when sampled can strongly skew results to high numbers of KIMs compared to till samples. In my case, where the lake itself is a potential kimberlite pipe, I take many (5-20) small 1-3 kg unscreened till samples, relatively closely spaced, from between ±50 to 1000 metres down-ice of the target, and generally combine the results into one larger sample, creating a more representative sampling of post-glacial conditions for emplacing KIMs into till.

As you can see, due to the lake being a heavy mineral trap for material up-ice/water flow, all the samples I take from 'close' proximity down-ice/water flow can in all probability be attributed to that lake (or in theory, a hidden pipe in very close proximity down-ice of the lake). So, any of these samples below a proposed pipe can individually or collectively statistically be attributed to this discrete target. Taking many smaller till samples from various locations down-ice was deemed appropriate to mitigate the extreme nugget effect caused by KIMs potentially being restricted to thin stratigraphic horizons in the till.

Side View – Till Sampling Program

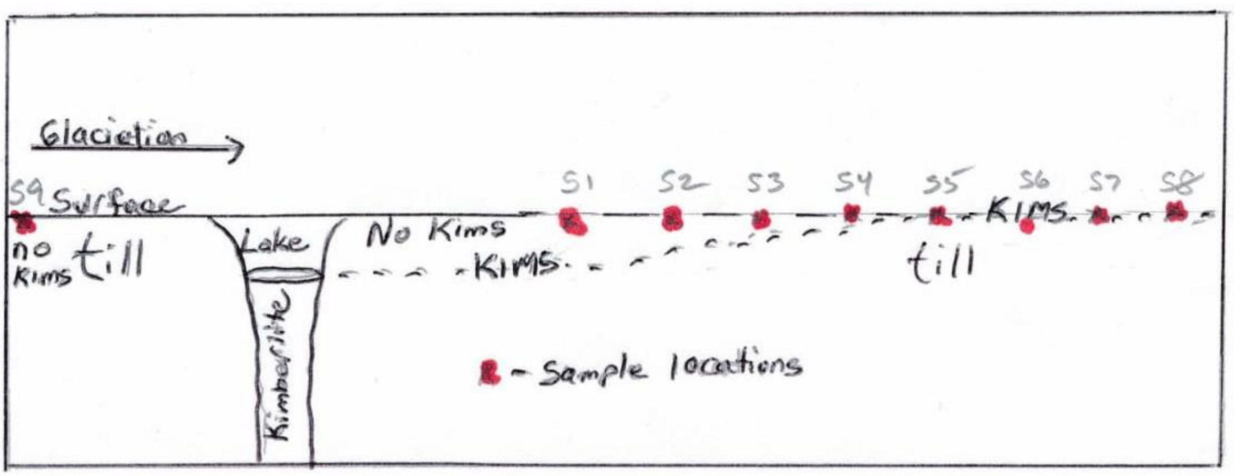


Diagram A

- If only S1 and/or S2 and/or S3 and/or S4 in till were sampled, one would find no KIMs and conclude no kimberlite up-ice
- If any one of S5, S6, S7, or S8 were sampled one might get favourable results for KIMs
- If the S1 ↔ S8 results, after concentrating and picking KIMs, are combined to a single larger sample result the chance of finding KIMs increases dramatically even though only 'one' or more samples contained KIMs initially. This is demonstrably more efficient and accurate at predicting proximity to a kimberlite pipe than only one larger sample would do
- Up-ice, S9 is a check and should statistically contain little to no KIMs
- Further sampling can then help verify/delineate the source of the KIMs

Top View – Till Sampling Program

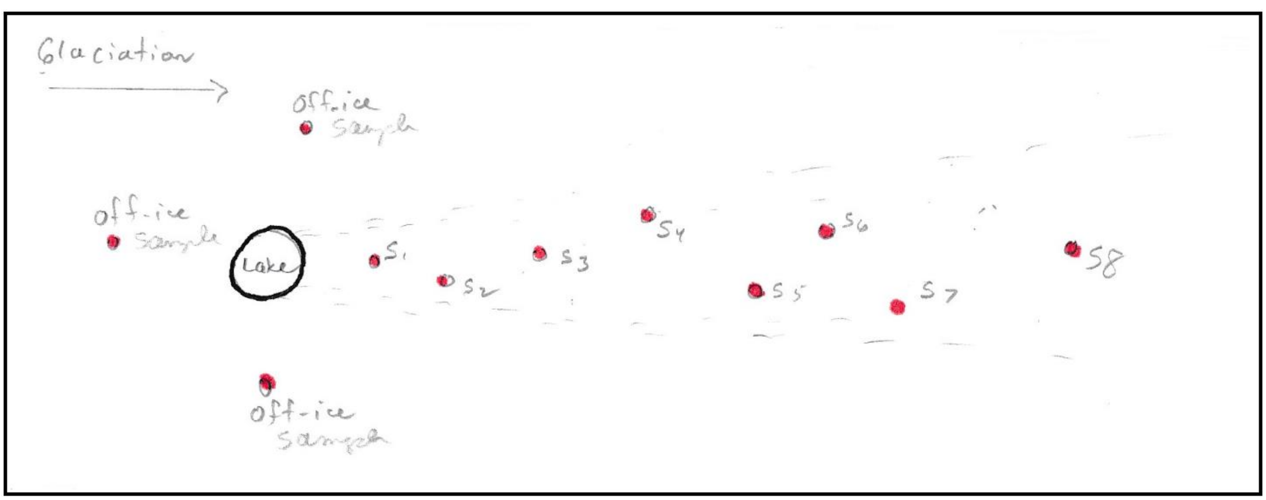


Diagram B

- Same as Diagram A, with off-ice samples containing little-to-no KIMs if lake is a kimberlite pipe

My blended till samples increases finding one or more that are confined to the appropriate KIM emplacement zone: I concentrate off-ice samples individually/separately. When KIM counts in off-ice samples drop to very few to zero, it adds to the probability of a favourable target location.

After concentrating the individual till samples, picking KIMs is done under a variable power binocular microscope with multiple lighting arrangements. I try to pick all KIMs, unless, as in some cases, they are in the thousands, then numbers are estimated. This of course takes many hours to days (sometime weeks) of work, especially when photographing and entering the photos into the computer correctly labelled, along with many hours of research identifying unusual/uncommon grains.

Also, to maximize local topography in the field, my knowledgeable samplers or I can make on the spot decisions in the field to sample near but not on my pre-planned coordinates (e.g., an upended tree root nearby etc.), and GPS coordinates are accepted by field workers as possibly being ± 10-50 metres off on any given day.

The up-ice samples are processed separately and considered separately. This initial sampling program was performed to obtain a yes/no probability of my target hypothesis. Additional sampling program(s) help further delineate these preliminary results.

Included in picking pyrope garnets are red, pink, and purple colours. Typically, Cr pyrope (by definition) garnets, in most literature, are considered to be red (colour comes from enhanced chromium and/or iron content) or purple depending on the article; however, McLean et al (2007) shows that the colours in the Canadian Diavik Mine A154-S kimberlite pipe garnets, in order of Chromium content which is important for diamond exploration, are as follows:

- "Orange xenocrysts have <1 wt.% Cr_2O_3, and are inferred to have eclogitic derivation
- There is a general increase in Cr content from orange → red → pink → purple. A similar trend may be seen in the data of Hawthorne et al. (1979) for garnets from the Dokolwayo kimberlite and Hlane paleoalluvial deposits in Swaziland
- Red grains increase in Cr from light → dark red
- Purple xenocrysts are more likely than pink or red to be harzburgitic (G10 or G10D), but colour alone cannot be used as a definitive test"

Pink garnets, however, are not commonly mentioned in diamond exploration literature. In samples from Canadian kimberlites, the Cr content of the pink-purple garnets seem to exceed that of the darker purple garnets when tested at the lab in Sudbury (verbal communication, Dave Crabtree, Geoscience Lab), (McLean et al, 2007), (Grutter et al, 2004); therefore, I am including pink garnets in pyrope garnet counts. This is, of course, subject to change as I continue to sample and have picked garnet grains analysed.

From reading a great number of articles it seems that there is no definitive rule concerning kimberlite minerals, colours of G10s can vary, some diamond pipes have no G10s at all and many other differences also occur. The differences are so numerous and interesting that a future paper or book could be compiled. A certain part of these findings will be presented in this report when applicable to certain claims.

In targeting and evaluating potential kimberlite pipes it is important also to note an article on 'Following kimberlite indicator minerals to source' in GSC OF-7374, "**The corollary for exploration at Chidliak is that any source of high garnet counts in sediment samples is considered worthy of pursuit, regardless of garnet compositions**" (Clements et al, 2013, p 51). With that in mind, if I attempt to normalize my results vs. sample size as compared to say, the OGS-OF report 6088 (see p 13 & 17), taking into account my samples were unscreened (until processed in the sluice and/or GoldCube®), the number of KIMs I picked could be averaged up a considerable amount in quantity.

Of course, while till sampling a large part of the day/traverse is spent investigating boulders by removing moss, etc. and in this case specifically looking for kimberlite boulders (which have been located on 2 claims so far with other possible grain sized pieces that might be) or other interesting rocks with mineralization. Because this target and sampling area is in and down-ice of a large expanse of diabase, nearly all boulders and outcrops are diabase with minor amounts of granite, dolomite, etc. As stated earlier, oversize from the sluice is bagged and viewed as time permits. No attempt will be made to identify every possible cobble if it is well worn and unrelated to kimberlite prospecting.

So… I'm sampling unconsolidated till, down-ice of a heavy mineral trap (lake) and taking comparatively small samples and getting high to very high in KIM anomalous results, which in classic teachings should result in poor→ no results. Unless of course the heavy mineral trap (lake) is the source of the heavy minerals.

METHODOLOGY FOR PROCESSING TILL SAMPLES: **Please also see Flow Sheet for Concentrating and Retrieving KIMs from Till and Stream Samples [Appendix 6]**

EQUIPMENT:

1) GOLDFINDER CUSTOM MADE SLUICE *(since modified by the author for the efficient processing ~10 to 100+ lb soil samples, for initial kimberlite indicators / heavy mineral concentration)***:**

The Goldfinder sluice (see Equipment photo 1) is manufactured with aircraft grade aluminum in 3 sections, with sturdy fast connecting latches. It is 14' long, 14" wide, and has height adjustments at front and back of the top section, and front and back of the fully assembled sluice. From the manufacturer, it excels at saving very fine flour as well as coarser gold. The ability to save 90%+ of flour gold in any sluice is exceedingly rare [The Goldfinder sluice was tested extensively in the 1970s by designer and developer Wayne Loewen on the Saskatchewan River as well as in-house tests with known gold grains counted before and after running through the sluice]. This particular sluice was rented from me by the then Resident Geologist Gerhard Meyer and District Geologist Gary Grabowski, both of the Kirkland Lake MRO, for testing for gold in eskers on the shores of Abitibi Lake. I determined that with certain beneficial modifications from stock it could also be very good at saving kimberlite indicator minerals (KIMs) from larger till samples.

Saving gold by gravity methods is comparatively easy as gold is about 7x heavier than indicator minerals or diamonds. To use the sluice to obtain a primary concentrate of KIMs, I removed the Hungarian riffles and the solid-backed 'miner's moss' carpet. I used a thicker, slightly more open-weave miner's moss, and overlying the miner's moss, a specific 4 mesh nylon classifying screen. This was cut to fit in the top of the sluice and overlaps the original grizzly bars to reduce the size of the feed material being concentrated prior to the miners' moss sections, and to spill the +4mm feed off the end of the top section which spills into a bucket and saved to visually check for kimberlites or other minerals of interest. A heavy duty ¾ HP submersible sump pump with a large flow rate replaced the 6 ½ HP Honda high pressure pump for a more correct water flow for the lighter material being run. This gave a 1" depth of water running above the top of the miner's moss. The sluice was run at a less steep angle than for gold to further enhance saving potential KIMs, with the first top section of the sluice adjusted to an angle with a drop of ½" over 36". The larger bottom section drops 3" every 5'. Great care must be exercised to level the sluice in the 14" width to provide an even water flow across its surface.

The modified sluice considerably reduced the original volume of material, but most importantly the modified wrap around spray bar [see Equipment photo in Appendix 8] blasts apart clay and other clumped material very quickly and the water flow then also quickly removes very fine silt, humus, and plant matter as well as +4mm rocks (previously, I would spend 1 – 2 hrs or more trying to break this clay and such by hand with various utensils and water spray, and afterwards would have to screen out the humus and then pan and classify with various screens). Efficiently saving the 1mm and smaller grains from clay/till strictly by hand methods is nearly impossible.

To test efficiency after the initial trial run using this equipment, I cleaned and kept separate the 4 carpet sections and the overflow of the sluice, which after further processing resulted in 25 separate samples of various meshes, and then checked the results under the microscope for indicators to determine if any losses were incurred and where. With this information, I was then able to make further modifications and retest to compare efficiencies which I continue to do and modify as needed.

The sluice concentrates <1.0mm are ran through the GoldCube® and the trays are cleaned (i.e. washed for concentrates). The rejects are saved and are again ran through the GoldCube®. The new rejects are discarded. Concentrates from the 1st and 2nd run are then blended and reran through the GoldCube®. The 1st tray is then cleaned and saved separately, as are the 2nd and 3rd trays. These rejects are then saved separately. These will all be dried and demagnetized and screened into a number of different mesh fractions, and these, if individually too large to directly pick for KIMs, are carefully panned to a manageable size. Although time consuming, this results in a very efficient and consistent method of concentrating till for KIMs and other heavy minerals.

Interestingly, many professional labs still list panning as the final concentration technique. This preliminary work was all necessary to determine the efficiency of sluicing till samples for KIMs and other heavy minerals with this particular sluice. Surprisingly, the first top section with no miner's moss had an interesting number of potential KIMs as well as a 1.5mm purple garnet in my sluice efficiency test. The next carpet had very many indicators, the next a sizable number of indicators, the final carpet and overflow had no KIMs or magnetite etc. that would typically comprise a heavy concentration.

2) GOLDCUBE®:

The GoldCube® is a 'new' and excellent concentrator built for gold, but after much testing I've discovered it works very well for kimberlite indicators minerals and is uncomplicated and easy to use. After numerous tests (much the same as for the sluice), I determined it is very efficient for smaller sized 1-4kg till/creek samples, after wet screening the samples to 1.0-2.0mm and <1.0mm which are ran through the concentrator individually. It has a very high recovery rate for <1.0mm heavy minerals and for removing virtually all the silt sized grains, and it's easy to clean after use. This piece of equipment has become indispensable and very efficient at concentrating individual till samples.

3) TYLER PORTABLE SIEVE SHAKER:

The Tyler sieve shaker (Equipment photo 2) is utilized for larger samples. For individual small samples, screening is done by hand with standard sieve screens and larger diamond screens.

4) MANSKER JIG:

I also acquired and compared the efficiency of using a Mansker Jig for concentrating till samples, as some labs and explorationists use this device extensively for this purpose. I purchased one Coleparmer 8" HHSS #40 sieve for KIMs, and one Coleparmer 8" HHSS #100 sieve for lamprophyre indicators. Based on my findings I have determined a preference for my sluicing and Goldcube® methodology, as this appears to be superior to the Mansker Jig in concentrating KIMs, more so when considering a several thousand US dollar price tag.

5) CAMEL SPIRAL CONCENTRATOR:

A Camel Spiral Concentrator, which is used by some commercial labs, was also tested for KIM concentrates and I found it to be the worst of the lot – essentially useless.

6) HIGH-SPEED CENTRIFUGE:

I acquired and tested a high-speed centrifuge to separate the final concentrate into specific gravity layers. The centrifuge only seems to work to an extent on the finest fraction of concentrates. For now I will continue to use a high quality pan for final concentrating.

7) OTHER:

I considered the use of Polytungstate for heavy liquid separation but at $2500 US for 500 ml and special licensing and equipment requirements to use this product I quickly nixed that idea.

8) MICROSCOPE:

After these steps the indicators are then visually picked out (or a number estimated, and/or photographed under the microscope if too many to pick out or count) from each fraction under a Nikon SMZ-2B 8-50x binocular microscope with the help of Pelco (ceramic or carbon-fibre tipped) medical grade tweezers, and colour correct LED lamps for top, left and right, and below lighting. LW and SW ultraviolet lamps are also used in conjunction with the microscope to further identify various mineral grains. I have also been researching and experimenting with the use of switching between incandescent, fluorescent, and LED light, as some/many kimberlite garnets are also rare colour-change garnets.

9) PHOTOGRAPIC RECORDING:

An extra but very important (and time consuming) step is to photograph many of the large/important/unusual potential KIM or other heavy mineral through the microscope ocular, recording the type, size, colour, etc. of each grain, and storing and labelling the images on the computer for later viewing or to aid when consulting with geologists and other experts in the field of mineralogy, especially as related to diamond exploration of which a number of interesting grains are represented in this report. Many photographs were taken for this claim of concentrates/various grains have been taken and stored. As well, when dealing with grains that are from 0.25 to <3.0mm in size, one simply cannot easily find a certain one in picked KIMs and show it to individuals to ascertain their potential importance, and once sent to a lab for microprobe analysis, important physical characteristics such as kelyphitic rims and physical wear are lost. Photographing all KIMs picked (or many representative grains if too numerous) also helps estimate total numbers in the sample.

10) LIGHTING:

Another useful tool for picking kimberlitic Cr Pyropes was discovered in my research.

> "Pyrope grains larger than 0.5mm and have a higher Cr content (Cr203) showed a metameric colour change from purplish in incandescent light to grey, blue-grey, or blue in daylight type fluorescent light (Springfield and Manslar, 1985) which is useful qualitative and for picking garnets with higher Cr content." (Carter Hearn Jr. (2004), p 481)

> "[A] color change garnet is an especially rare and valuable … garnet" (GemSelect (2018))

> "[A] color change garnet is one of the most rare, interesting, and unique of all gemstones." (AJS Gems)

> "Cr pyropes are picked at ODM by switching light sources (LED and Fluorescent) to find colour change garnets which are from this and other sources indication of kimberlitic chrome pyrope garnets" (personal communication)

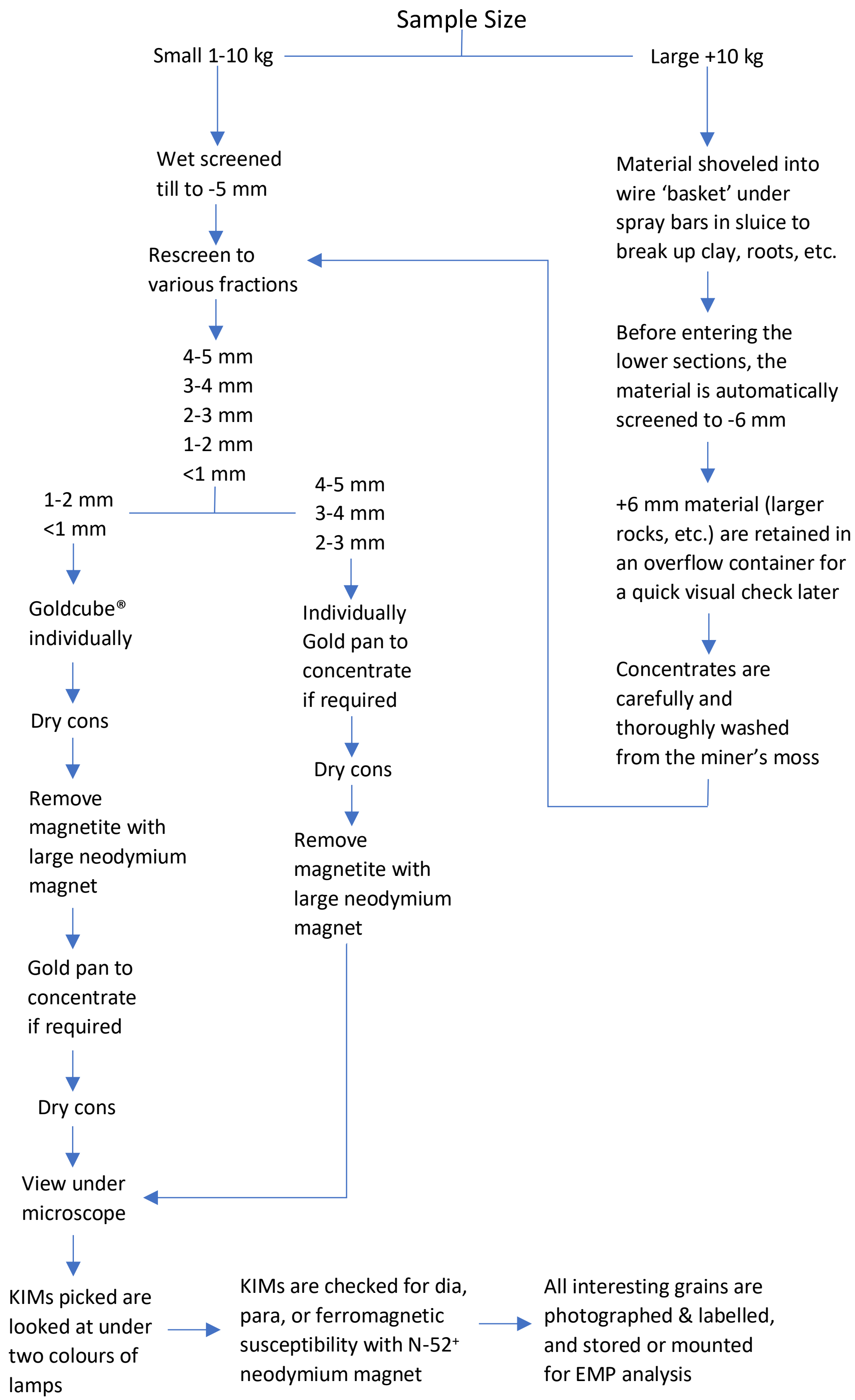
Over the last several years, I've tried many (several dozen) types and colours of bulbs and a number of lamp configurations. The latest and so far best is a pair of desk-sized gooseneck LED lamps (Jansjö LED Lamp from Ikea) which gives a true colour image under the microscope and in a microphotography image, and a variable intensity ring light (AmScope – 144 Bright White LED Ring Light) that mounts directly onto the lower part of the microscope and provides a very white (daylight) illumination.

After finding a Cr Pyrope (pink → purple), I can switch from one light to the other separately.

The results are dramatic with a colour change from lilac-purple to grey.

Appendix 6

Flow Sheet for Concentrating and Retrieving KIMs from Till & Stream Samples



Appendix 7

Equipment List

- Mansker Jig
- Camel Spiral Concentrator
- Custom designed proprietary tube/spiral concentrator for fine to very fine material
- Diamond sieves
- Tyler – 8 sieve Motorized Portable Sieve Shaker
- Various test sieves from -4 to -100 mesh
- 12V and 120V and motorized water pumps for concentrators as needed
- Garrett Au Pans: 15” super sluice, 10”
- Keene’s Engineering Au Pans: 14”, 12”, 10”
- Heavy duty 18” x 16” rubber panning tub
- Goldcube® fine Au/heavy mineral concentrator
- Goldspears (2 of) with extra 4’ extensions for precious metal and magnetite soil testing, wet & dry
- Scintrex-Scintillation Counter Model BGS-1S
- Rock saws: 10”, 18”, 24”, 36”
- Various metal/mineral detectors: MineLab Pro-find Pinpointer, Garrett’s BFO, ADS VLF 5khz, AT-Gold 15 khz, ATX multi-frequency pulse
- Goldfinder 14’ aircraft aluminum collapsible sluice with ¾ hp 120V submersible pump, 6 ½ hp Honda pump, dredging (3”) capability, custom designed Hungarian and expanded metal riffles, -4 mesh classifying screen
- Digiweigh digital scale, readability 0.1 gram
- Mettler PM30, 0-60lb, 0.1g scales
- Fujifilm Finepix SL, Nikon Coolpix digital cameras, custom microscope adapter for Coolpix
- Canon EOS Rebel SLR, with commercial microscope adapter
- Zeiss OPMI-1 stereo 4-25x microscope with thru the lens variable halogen lighting, 6’ articulating boom stand
- Zeiss Jena 4-25x compound microscope with separate oculars to 80x
- Bristal 40-1000x microscope
- Nikon SMZ 2B continuously variable 8-50x microscope with adjustable boom stand
- Turnstile microscope viewing platform
- Diamond Selector II
- Superbright 2000SW and Superbright II LW370 portable ultraviolet lights /battery/120V
- Inova multi-wavelength LW UV LED flashlight
- Jansjö LED gooseneck microscope lamps
- AmScope 144 bright-white variable intensity ring light
- Clay-Adams high speed centrifuge
- 2” Neodymium magnet in waterproof ABS shell
- Weaker 4” x 6” flat magnet cut to fit Au pans
- Various shovels, auger, containers, compasses, GPS, maps, etc. as needed for soil/rock sampling
- Electronic pH tester and pH strips
- Toyota Tacoma 4x4
- 8’ Boler, 14’ Boler trailers/portable camps

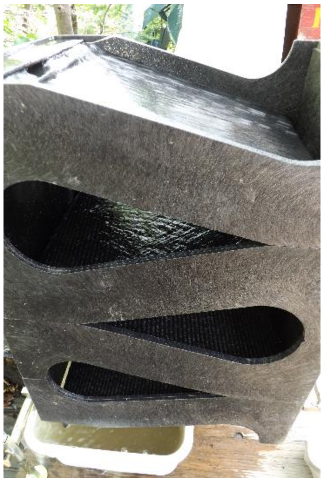
Equipment Photos

Appendix 8

1 - Goldfinder Sluice

1a - Panned and dried concentrates from sluice efficiency test ready to pick for KIMs under microscope

2 -Tyler motorized portable sieve shaker



3 - Goldcube®

4 - Variable speed industrial tumbler

5 - Microscopes

6 - 2-inch neodymium magnet

7 - Portable camp near claim

Appendix 9

Geoscience Labs – Certificates of Analysis

Ontario

CERTIFICATE OF ANALYSIS

GEO LABS

GEOSCIENCE LABORATORIES

Geoscience Laboratories (Geo Labs)
933 Ramsey Lake Road, Bldg A4
Sudbury, ON P3E 6B5
Phone: (705) 670-5637
Toll Free: 1-866-436-5227

Issued To:	Mr. T. Bishop 440 Grenfell Rd Swastika, ON P0K 1T0 Canada
Phone:	705-642-3937
Fax:	
Email:	bishop.ts@gmail.com
Client No:	1599

Certificate No:	CRT-17-0107-03
Certificate Date:	06/09/2017
Project Number:	
Geo Labs Job No:	17-0107
Submission Date:	06/06/2017
Delivery Via:	Email
QC Requested:	Y

Method Code reported with this certificate: **SEM-101**

Method Code	Description	QTY	Test Status
EMP-100	Microprobe Analysis / Grain	1	Completed
SEM-101	SEM: Rental With Operator	1	Completed

Please refer to the Geo Labs Job No. 17-0107 if you have any questions.

CERTIFIED BY :

Date: Sept 8 2017

Page 1 of 1

John Beals, GeoServices Senior Manager

Appendix 9

Ontario

CERTIFICATE OF ANALYSIS

GEO LABS

GEOSCIENCE LABORATORIES

Geoscience Laboratories (Geo Labs)
933 Ramsey Lake Road, Bldg A4
Sudbury, ON P3E 6B5
Phone: (705) 670-5637
Toll Free: 1-866-436-5227

Issued To:	Mr. T. Bishop 440 Grenfell Rd, RR#2 Swastika, ON P0K 1T0 Canada
Phone:	705-642-3937
Fax:	
Email:	bishop.ts@gmail.com
Client No:	1599

Certificate No:	CRT-17-0107-04
Certificate Date:	22/09/2017
Project Number:	
Geo Labs Job No:	17-0107
Submission Date:	06/06/2017
Delivery Via:	Email
QC Requested:	Y

Method Code reported with this certificate: EMP-100

Method Code	Description	QTY	Test Status
EMP-100	Microprobe Analysis / Grain	1	Completed
SEM-101	SEM: Rental With Operator	1	Completed

REVISED
DATE: Sep 22/2017.
RE Certificate # CRT-17-0107-02

Please refer to the Geo Labs Job No. 17-0107 if you have any questions.

CERTIFIED BY :

John Beals, GeoServices Senior Manager

Date: Sept 22 2017

Page 1 of 1

Appendix 9

Ontario

Geoscience Laboratories (Geo Labs)
933 Ramsey Lake Road, Bldg A4
Sudbury, ON P3E 6B5
Phone: (705) 670-5637
Toll Free: 1-866-436-5227

CERTIFICATE OF ANALYSIS

GEO LABS

GEOSCIENCE LABORATORIES

Issued To:	Mr. T. Bishop 440 Grenfell Rd, RR#2 Swastika, ON P0K 1T0 Canada
Phone:	705-642-3937
Fax:	
Email:	bishop.ts@gmail.com
Client No:	1599

Certificate No:	CRT-17-0279-01
Certificate Date:	02/10/2017
Project Number:	
Geo Labs Job No:	17-0279
Submission Date:	09/14/2017
Delivery Via:	Email
QC Requested:	Y

Method Code reported with this certificate: EMP-100

Method Code	Description	QTY	Test Status
EMP-100	Microprobe Analysis / Grain	1	Completed

Please refer to the Geo Labs Job No. 17-0279 if you have any questions.

CERTIFIED BY :

John Beals, GeoServices Senior Manager

Date: Oct 2 2017

Page 1 of 1

Appendix 10

Geoscience Labs – Results

EMP-100:

Client	**Tony Bishop**
Mineral	**Garnet**
Sample	**Various**
Job #	**17-0107**
Analyst	**D. Crabtree**
Analyst Approved	**September 20th 2017**

GEOSCIENCE LABORATORIES REPORT
ELECTRON MICROPROBE ANALYSIS
Data reviewed by Dave Crabtree

Sample Label	SiO2	TiO2	Al2O3	V2O3	Cr2O3	MgO	CaO	MnO	FeO^t	Na2O	K2O	Total
Cr-Pyrope Garnet Analyses												
G10 Harzburgite Garnet (Grutter Classification)												
S-G74	41.683	0.010	20.756	0.023	4.499	22.088	3.284	0.410	7.065	0.016	0.000	99.834
S-G83	42.142	0.017	21.101	0.019	4.059	21.869	4.078	0.413	6.779	0.017	0.000	100.494
S-G91	40.929	0.026	19.480	0.029	5.713	20.867	3.765	0.377	8.595	0.018	0.000	99.799
G9 Lherzolite Garnet (Grutter Classification)												
S-G1	41.928	0.016	21.103	0.026	4.033	20.266	5.397	0.400	7.324	0.012	0.003	100.508
S-G5	41.536	0.069	20.875	0.021	4.178	20.355	4.939	0.497	7.630	0.027	0.000	100.127
S-G6	41.726	0.027	22.573	0.013	1.678	20.498	4.551	0.438	8.892	0.017	0.000	100.413
S-G10	42.109	0.002	21.274	0.013	3.680	21.500	4.587	0.377	6.724	0.013	0.003	100.282
S-G11	40.175	0.230	18.840	0.026	5.538	17.109	5.951	0.478	11.335	0.035	0.000	99.717
S-G15	41.776	0.201	21.270	0.029	3.128	20.819	4.698	0.404	7.977	0.041	0.000	100.343
S-G16	41.404	0.018	19.656	0.028	5.856	20.577	4.915	0.473	7.274	0.019	0.000	100.220
S-G24	41.729	0.023	20.961	0.015	3.940	20.956	4.978	0.423	7.441	0.019	0.000	100.485
S-G25	41.460	0.000	20.893	0.019	3.984	20.437	5.489	0.476	7.215	0.005	0.001	99.979
S-G29	41.719	0.007	21.406	0.017	3.476	21.136	4.402	0.479	7.215	0.014	0.000	99.871
S-G30	41.503	0.017	20.215	0.019	5.003	20.494	5.446	0.434	7.096	0.016	0.002	100.245
S-G36	41.606	0.018	20.361	0.020	5.000	20.641	4.962	0.470	7.182	0.025	0.000	100.285
S-G37	41.793	0.322	20.707	0.039	3.442	21.317	5.098	0.287	6.903	0.030	0.002	99.940
S-G38	41.417	0.010	19.838	0.032	5.016	18.963	5.786	0.489	8.566	0.010	0.001	100.128
S-G40	41.701	0.193	19.902	0.033	5.028	20.928	4.995	0.356	7.049	0.043	0.000	100.228
S-G41	41.636	0.228	20.473	0.024	3.980	21.250	4.802	0.392	7.312	0.046	0.000	100.143
S-G42	41.890	0.105	20.707	0.028	4.167	20.214	5.370	0.399	7.368	0.018	0.000	100.266
S-G47	41.392	0.199	19.758	0.034	5.005	19.983	5.281	0.436	8.052	0.044	0.000	100.184

All concentrations are reported as wt%.

Sample Label	SiO2	TiO2	Al2O3	V2O3	Cr2O3	MgO	CaO	MnO	FeO^t	Na2O	K2O	Total
S-G48	41.823	0.131	21.166	0.029	3.545	20.549	4.863	0.460	8.058	0.022	0.002	100.648
S-G49	41.206	0.034	19.937	0.024	5.113	20.139	5.461	0.439	7.403	0.017	0.000	99.773
S-G50	41.392	0.004	20.500	0.031	4.361	20.182	5.593	0.423	7.696	0.006	0.000	100.188
S-G51	41.411	0.045	21.135	0.012	3.717	20.487	4.885	0.513	7.675	0.026	0.001	99.907
S-G52	41.938	0.145	21.202	0.037	3.486	20.141	4.947	0.409	8.014	0.027	0.000	100.346
S-G64	41.903	0.040	20.716	0.026	4.495	20.754	5.220	0.402	7.244	0.016	0.000	100.816
S-G65	41.437	0.197	19.624	0.038	5.553	20.689	5.265	0.396	7.063	0.037	0.000	100.299
S-G66	41.859	0.087	21.601	0.021	3.016	20.770	4.634	0.403	7.960	0.022	0.002	100.375
S-G67	41.066	0.320	18.159	0.025	7.077	20.068	5.831	0.379	6.983	0.040	0.000	99.948
S-G68	41.768	0.043	21.777	0.031	2.836	20.080	5.030	0.393	8.451	0.017	0.000	100.426
S-G69	41.530	0.173	19.667	0.033	5.482	20.247	5.293	0.425	7.422	0.044	0.000	100.316
S-G70	41.382	0.097	19.462	0.020	5.673	20.360	5.528	0.443	7.222	0.031	0.003	100.221
S-G71	41.412	0.066	20.628	0.022	4.183	19.342	5.800	0.581	8.397	0.016	0.000	100.447
S-G72	41.289	0.102	19.620	0.029	5.599	20.507	5.391	0.442	7.134	0.029	0.000	100.142
S-G75	41.079	0.002	19.948	0.024	5.155	19.497	6.385	0.481	7.247	0.009	0.001	99.828
S-G77	41.383	0.005	19.975	0.031	5.052	20.504	5.488	0.422	7.331	0.015	0.000	100.206
S-G80	41.298	0.090	19.228	0.043	5.653	20.267	5.683	0.364	7.399	0.023	0.000	100.048
S-G81	41.550	0.094	20.943	0.025	3.855	19.930	4.953	0.465	8.400	0.024	0.000	100.239
S-G84	41.347	0.000	20.916	0.020	3.747	20.100	5.208	0.506	8.039	0.013	0.000	99.896
S-G90	40.920	0.047	19.879	0.019	5.116	19.037	5.711	0.573	8.330	0.026	0.001	99.659
S-G93	41.128	0.084	18.771	0.040	6.828	20.239	5.396	0.450	7.128	0.010	0.000	100.074
S-G94	40.699	0.208	19.110	0.031	5.984	20.344	5.144	0.430	7.529	0.047	0.000	99.526
S-G96	41.056	0.202	18.569	0.034	6.389	20.215	5.720	0.376	7.221	0.028	0.000	99.810
G11 Hi-Ti Peridotitic Garnet (Grutter Classification)												
S-G17	41.268	0.807	18.398	0.054	5.169	19.570	6.396	0.303	8.064	0.032	0.000	100.061
S-G22	41.330	1.014	17.583	0.046	6.727	20.524	6.135	0.273	6.696	0.060	0.000	100.388
S-G92	41.535	0.658	19.707	0.040	4.495	21.091	5.267	0.303	7.206	0.061	0.000	100.363
G1 Low-Cr Megacryst Garnet (Grutter Classification)												
S-G45	41.804	0.468	21.449	0.034	1.818	20.562	4.605	0.323	8.880	0.048	0.003	99.994
S-G8	42.153	0.694	22.048	0.039	1.223	21.071	4.604	0.324	8.513	0.067	0.001	100.737

All concentrations are reported as wt%.

Sample Label	SiO2	TiO2	Al2O3	V2O3	Cr2O3	MgO	CaO	MnO	FeO^t	Na2O	K2O	Total
G12 Wherlitic Garnet (Grutter Classification)												
S-G89	39.707	0.054	20.229	0.041	3.341	14.980	6.444	0.697	14.028	0.006	0.000	99.527
S-G95	40.189	0.042	17.663	0.062	7.221	16.088	7.901	0.652	10.165	0.003	0.001	99.987

All concentrations are reported as wt%.

Sample Label	SiO2	TiO2	Al2O3	V2O3	Cr2O3	MgO	CaO	MnO	FeO^t	Na2O	K2O	Total

Crustal Garnet Analysis

Typical Spessertine Garnet Analysis

Sample Label	SiO2	TiO2	Al2O3	V2O3	Cr2O3	MgO	CaO	MnO	FeO^t	Na2O	K2O	Total
S-G39	36.838	0.105	20.363	0.006	0.001	1.813	5.502	8.620	26.595	0.008	0.000	99.851

Other Grains: Non Kimberlite Indicator Minerals (Not analysed)

S-G7	almandine
S-G9	almandine
S-G12	almandine
S-G18	almandine
S-G26	almandine
S-G27	almandine
S-G32	almandine
S-G33	almandine
S-G57	almandine
S-G73	andradite
S-G34	andradite
S-G46	fe-oxide
S-G55	fe-oxide
S-G76	K-Feldspar
S-G87	Mg-Si-Fe alt oli?
S-G20	peraluminous silicate
S-G44	peraluminous silicate
S-G78	peraluminous silicate
S-G79	peraluminous silicate
S-G82	peraluminous silicate
S-G60	quartz
S-G4	spessertine
S-G2	spessertine
S-G13	spessertine
S-G14	spessertine
S-G23	spessertine

All concentrations are reported as wt%.

Sample Label	SiO2	TiO2	Al2O3	V2O3	Cr2O3	MgO	CaO	MnO	FeO^t	Na2O	K2O	Total
S-G43	spessertine											
S-G58	spessertine											
S-G61	spessertine											
S-G85	spessertine											
S-G86	spessertine											
S-G3	titanite											
S-G19	titanite											
S-G21	titanite											
S-G28	titanite											
S-G31	titanite											
S-G35	titanite											
S-G53	titanite											
S-G54	titanite											
S-G56	titanite											
S-G59	titanite											
S-G62	titanite											
S-G88	titanite											
S-G63	zircon											

changes made to labels:
S-G2 (17-0107-P02-001) originally labelled as S-G12
SG-34 andradite was originally lebelled as epidote
Job # was originally listed as 17-0170

Appendix 10

GEO LABS
GEOSCIENCE LABORATORIES

Ontario

Q.C. NOTE TO ACCOMPANY ANALYTICAL RESULTS

Client	: Bishop
Job #	: 17-0107
Test	: EMP-100
Sample #	: see below
Date	: September 21, 2017

Please Note:

Labelling errors discovered in the report for job 17-0107 by the EMP-100 test method have been corrected. Please see the attached revised report. If you would like additional work please contact Kayla Kalmo at (705) 670-5632 or email kayla.kalmo@ontario.ca.

Sincerely,

Jennifer Hargreaves,
Quality Assurance Coordinator

EMP-100:

Client	**Tony Bishop**	**GEOSCIENCE LABORATORIES REPORT**	
Mineral	**Various**	**ELECTRON MICROPROBE ANALYSIS**	
Sample	**Various**	Data reviewed by Dave Crabtree	
Job #	**17-0279**		
Analyst	**D. Crabtree**		
Analyst Approved	**September 28th 2017**		

Note that low totals in some of the analyses are the result of hydration in the mineral structure, or in the case of andradite are due to the presence of Fe^{3+}

Sample Label	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	ZnO	Na2O	K2O	F	Cl	Y2O3	La2O3	Ce2O3	Pr2O3	Nd2O3	Sm2O3	Gd2O3	Total
Titanite (Rare Earth Elements and Halogens included)																					
S-G53	29.830	36.360	1.145	0.024	0.000	27.398	0.050	1.690	0.003	0.026	0.000	0.307	0.000	0.143	0.311	0.845	0.120	0.513	0.040	0.104	98.909
S-G56	29.772	35.814	1.147	0.020	0.014	26.999	0.037	1.851	0.009	0.032	0.007	0.484	0.000	0.156	0.342	0.865	0.139	0.519	0.071	0.092	98.370
S-G59	30.263	37.306	1.460	0.013	0.007	27.952	0.098	1.186	0.000	0.000	0.000	0.265	0.000	0.097	0.032	0.279	0.045	0.227	0.000	0.045	99.275
S-G62	29.802	37.337	1.044	0.096	0.018	27.392	0.050	1.153	0.000	0.014	0.000	0.335	0.007	0.200	0.117	0.439	0.078	0.325	0.077	0.092	98.576
S-G19	29.419	35.727	1.117	0.018	0.027	26.646	0.070	2.041	0.000	0.090	0.010	0.471	0.001	0.207	0.363	0.937	0.180	0.671	0.108	0.211	98.314
S-G21	29.681	35.867	1.023	0.030	0.015	26.796	0.085	1.801	0.000	0.026	0.001	0.361	0.009	0.164	0.334	0.897	0.137	0.516	0.092	0.123	97.958
S-G28	30.285	36.374	1.205	0.027	0.000	27.776	0.048	1.456	0.000	0.002	0.007	0.335	0.009	0.104	0.127	0.470	0.070	0.331	0.080	0.084	98.790
S-G31	29.853	37.179	1.019	0.042	0.000	27.330	0.060	1.173	0.003	0.028	0.012	0.200	0.002	0.143	0.172	0.751	0.100	0.486	0.065	0.146	98.764
S-G88	29.299	35.937	0.478	0.040	0.012	25.091	0.104	2.047	0.007	0.181	0.004	0.111	0.000	0.380	0.543	1.823	0.281	1.194	0.209	0.223	97.964
S-G3	29.529	35.406	0.901	0.054	0.018	26.497	0.072	2.440	0.000	0.096	0.000	0.448	0.000	0.200	0.407	1.113	0.157	0.627	0.087	0.206	98.258
S-G35	29.673	36.179	1.284	0.032	0.000	26.710	0.055	1.322	0.006	0.022	0.000	0.313	0.007	0.240	0.119	0.742	0.169	0.807	0.201	0.161	98.042
S-G54	29.982	36.496	1.565	0.000	0.002	27.507	0.070	1.524	0.024	0.001	0.000	0.339	0.005	0.288	0.024	0.307	0.086	0.402	0.073	0.115	98.810
Almandine																					
S-G57	37.463	0.029	21.448	0.009	4.703	1.075	1.488	34.373	0.000	0.000	0.004	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	100.592
S-G33	38.233	0.002	22.049	0.059	8.309	1.060	0.579	30.437	0.002	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	100.730
S-G18	37.454	0.013	21.730	0.000	7.361	0.899	1.268	30.772	0.000	0.000	0.001	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	99.498
S-G32	37.403	0.099	21.211	0.040	3.545	1.641	3.045	33.609	0.000	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	100.593
S-G12	37.263	0.020	21.325	0.048	7.015	0.679	1.764	30.373	0.003	0.000	0.006	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	98.496
S-G7	36.983	0.026	21.340	0.024	3.955	1.445	5.286	31.175	0.000	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	100.234
S-G9a	37.144	0.134	20.782	0.014	2.581	4.170	0.318	34.531	0.006	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	99.680
S-G26	37.386	0.003	21.393	0.016	4.404	1.098	4.417	32.203	0.000	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	100.920
S-G27	37.334	0.000	21.476	0.003	4.559	1.502	4.076	31.301	0.000	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	100.251
Andradite																					
S-G73	36.118	0.648	6.572	0.024	0.087	32.441	0.886	20.648	0.015	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	97.439
S-G34	37.161	0.138	10.456	0.000	0.000	31.077	0.088	19.728	0.000	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	98.648
Spessertine																					
S-G39	37.043	0.109	20.390	0.001	2.038	5.760	8.385	26.561	0.000	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	100.287
S-G4	35.863	0.077	20.404	0.000	0.761	0.936	13.878	27.914	0.021	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	99.854
S-G13	35.716	0.069	20.075	0.001	0.367	0.486	25.392	17.323	0.059	0.006	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	99.494
S-G14	35.409	0.108	19.825	0.000	0.823	1.248	19.794	21.264	0.000	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	98.471
S-G23	35.927	0.208	19.988	0.000	0.971	0.660	19.327	21.998	0.013	0.034	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	99.126
S-G58	35.346	0.191	19.925	0.001	0.503	0.220	28.457	14.303	0.024	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	98.970
S-G61	35.773	0.026	20.863	0.002	0.884	0.616	25.809	15.635	0.015	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	99.623
S-G2	35.661	0.200	20.016	0.000	0.771	0.565	23.078	19.098	0.012	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	99.401
S-G85	35.731	0.102	19.994	0.000	0.291	0.718	21.550	21.495	0.048	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	99.929
S-G86	36.042	0.111	19.948	0.000	0.362	0.894	25.171	17.574	0.043	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	100.145
S-G43	35.640	0.035	20.224	0.009	0.893	1.030	17.628	23.617	0.011	0.028	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	99.115

All concentrations are reported as wt%.

Appendix 10

Sample Label	SiO2	TiO2	Al2O3	Cr2O3	MgO	CaO	MnO	FeO	ZnO	Na2O	K2O	F	Cl	Y2O3	La2O3	Ce2O3	Pr2O3	Nd2O3	Sm2O3	Gd2O3	Total
Stauralite																					
S-G78	27.283	0.607	54.209	0.048	1.847	0.000	0.330	13.122	0.191	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	97.637
S-G20	27.446	0.604	53.586	0.102	1.886	0.000	0.271	13.308	1.038	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	98.241
S-G82	27.022	0.549	54.851	0.062	1.796	0.014	0.271	13.600	0.231	0.000	0.009	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	98.405
S-G44	27.124	0.523	54.921	0.039	2.485	0.011	0.322	13.187	0.147	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	98.759
S-G79	27.619	0.657	53.688	0.064	1.920	0.001	0.371	13.717	0.326	0.000	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	98.363
Quartz																					
S-G9b	100.919	0.010	0.000	0.000	0.008	0.010	0.001	0.365	0.000	0.000	0.006	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	101.319
S-G60	100.238	0.000	0.139	0.003	0.005	0.000	0.000	0.102	0.005	0.000	0.054	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	100.546
Feldspar																					
S-G76	64.499	0.000	18.427	0.009	0.000	0.000	0.000	0.040	0.000	0.672	15.877	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	99.524
Aletered silicate (serpentine?)																					
S-G87	41.519	0.028	1.785	0.000	36.743	0.183	0.062	6.234	0.034	0.014	0.000	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	86.602

All concentrations are reported as wt%.

Appendix 10

SEM-101:

GEO LABS
GEOSCIENCE LABORATORIES

Ontario

Mineralogy Report

Client Contact: Mr. Tony Bishop
GL Job Number: 17-0107
Test Group: SEM-101
Date: August 29, 2017

Client Request:

Thirty five grains were submitted for energy dispersive (ED) x-ray analysis with the SEM in order to determine if any of the grains classify as diamond.

The samples were mounted on double-sided carbon tape and analysed non-polished and non-coated. The analysis is therefore only collected at the surface of the grain. This sample preparation technique makes it possible to identify the elements present in the grain, however this approach is not ideal for quantitative analysis. These results are therefore qualitative in nature.

Results:

None of the samples submitted for analysis were positively identified as diamond. See Appendix 1 for table of results.

Table 1. Table of results.

Grain #	ID
S-D1	quartz
S-D2	quartz
S-D3	fe-oxide
S-D4	silicate (almandine?)
S-D5	silicate (epidote?)
S-D6	silicate (epidote?)
S-D7	quartz
S-D8	quartz
S-D9	quartz
S-D10	calcite
S-D11	calcite
S-D12	calcite
S-D13	calcite
S-D14	quartz
S-D15	quartz
S-D16	quartz
S-D17	quartz
S-D18	quartz + organics?
S-D19	quartz
S-D20	silicate (epidote?)
S-D21	quartz?
S-D22	quartz+Fe-oxide or Fe-carbonate?
S-D23	Fe-oxide
S-D24	organic material
S-D25	mainly halite + Al, Si, K, P, Ca
S-D26	mixed silicate coated with organic material
S-D27	silicate (epidote?)
S-D28	organic material
S-D29	zircon
S-D30	quartz
S-D31	silicate (epidote?)
S-D32	quartz
S-D33	silicate (epidote?)
S-D34	silicate (epidote?)
S-D35	quartz

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 Legacy Claim L 4282412 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. Since then I have designed, built and used new types of concentrating equipment for heavy minerals/metals.

For over forty years I was a dealer for many of the major metal detector manufacturers at that time. I was also a dealer for Keene's Engineering of California, possibly the best-known manufacturer of small to medium scale prospecting and mineral recovery equipment. I was also (the only) dealer for Goldfinder Custom Sluices built by Wayne Loewan in Alberta. Until recently I was sent new models/types of Garrett metal detectors to test in the field for their prospecting capabilities.

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.

I was the first (and possibly only) person to use a Garrett Sentry Tracing instrument (used to find underground cables etc.) to look for silver veins (Cobatec, Castle Resources), and underground at Macassa Mine (now Kirkland Lake Gold) to successfully locate 600' and 800' vertical length large bore holes (for paste) that had missed the adit by 14' and 18' respectively.

I have also been hired by two different mining exploration companies to locate samples of gold and silver with metal detectors and grade waste dumps with metal detectors to determine if they could be profitably re-milled.

The last four years I have devoted to full-time diamond exploration. While interpreting the results of till sampling programs and the KIMs that were found, the primary author has conducted 1,000+ hours of research on the scientific and exploration aspects of Canadian diamond discoveries from many diverse sources on exploration and processing techniques. The Resident Geologist's office (MNDM, Kirkland Lake) has many kimberlite and KIM samples that were compared to the ones found on the Bishop Claims. One present and two former Resident Geologists were regularly consulted, as well as the former District Geologist who is considered the local diamond expert for this area. Other prospectors and geologists are regularly consulted, especially Douglas Robinson, P.Eng Geo, who has overseen and verified much of the results and methodologies of the work.

My comprehensive assessment reports can be viewed online on the MNDM website. In the last few years I've developed new techniques for identifying KIMs and for determining the diamond potential in kimberlite pipes, and some of these are outlined in my latest reports.

Drawing on this research and my many years of practical experience, especially in placer mining techniques, 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. I recently purchased a complete heavy mineral lab formerly operated by True North Mineral Laboratories in Timmins to integrate as another part of my KIM processing equipment.

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:

Brian Anthony (Tony) Bishop

August 17, 2018

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For full list of references please refer to Bishop, B.A. (2018b).

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