We are committed to providing <u>accessible customer service</u>. If you need accessible formats or communications supports, please <u>contact us</u>.

Nous tenons à améliorer <u>l'accessibilité des services à la clientèle</u>. Si vous avez besoin de formats accessibles ou d'aide à la communication, veuillez <u>nous contacter</u>.



ASSESSMENT WORK REPORT CLAIM L 4282176

Gillies Limit 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

•	Assess	ment Report for Claims 4282176, Gillies Limit, Larder Lake Mining Division		
	0	Intro	Page 3	
	0	Purpose	Page 3	
	0	Access	Page 3	
	0	Previous Work	Page 3	
	0	Geology	Page 4	
	0	Fieldwork: Traverse 1, Fieldwork, Map, & Field Notes	Page 4	
•	Result	s & Microscope Photos of KIMs	Page 9	
•	Conclusions			
•	Recommendations for Future Work			
•	Expenses			
•	Appen	dices	_	
	0	History of Development in the Cobalt Area, Appendix 1	Page 12	
	0	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	
	0	Advances in Diamond Exploration in Canada: Understanding the	Page 23	
		Importance of Non-Magnetic Signatures and Geo-Chemical and		
		Structural Geology, Appendix 3		
	0	Methodologies for Field Work and Till Sample Processing, Appendix 4	Page 23	
	0	Sluice Efficiency Test Results, Appendix 5	Page 23	
	0	Flow Sheet for Concentrating and Retrieving KIMs from Till and	Page 23	
		Stream Samples, Appendix 6		
	0	Equipment List, Appendix 7	Page 23	
	0	Equipment Photos, Appendix 8	Page 23	
	0	Reterence Photos from Arctic Star, Appendix 9	Page 23	
•	Statement of Qualifications			
•	References & Resources			
•	Acknowledgements			

ASSESSMENT REPORT FOR CLAIM 4282176, Gillies Limit, 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 4282176. The claim contains four units, situated in Block 23, Gillies Limit, Larder Lake mining division [Appendix 2: Map 1, page 14]. This report includes details of work done to date, including prospecting and preliminary geochemical surveys based on till sampling and analysis, with recommendations for further assessment of this in conjunction with work done on contiguous claims. Fieldwork detailing one traverse through difficult terrain with 4 till samples collected and subsequently processed and examined has been included.

PURPOSE:

The purpose of staking Claim L 4282176 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 1-3 kimberlite pipes manifested in the post-glacial topography by round dark circular impressions in the three unnamed lakes, and by the circular nature of the lakes themselves. 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 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. 4282176 (south Schumann Lake) can be made from the town of Cobalt.

Cobalt is reached from Highway 11 via Highway 11B. Claim no. 4282176 is situated approximately 9 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 two km 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. Halfway between the Ophir Mine site and Claim no. 4282176 there is a fork in the road as it passes Mary Ann Lake – continue south on the right side until you are located between Chopin Lake on the east and the claim no. 4282176 on the west; you will have to park at Chopin Lake and continue due west 1 km through the bush on foot.

PREVIOUS WORK and significance to Claim 4282176:

The only work that can be located on this claim is a (Cabo, 2002) hand mag survey between the two small lakes in the lower two units on the east side of the claim and crossing the steep hills to the west and east. They did not survey the lakes. No important results were recorded, and they dropped the claim area. Above the claim, below Schumann Lake, Cabo also took a small number of creek samples for KIMs. The results were poor with no Cr pyropes. As well, I took a number of samples from my adjoining claim (4284088) on the northeast side of 4282176. From these samples, below a round lake, a presumed kimberlite pipe, a small number of grains (2 Cr pyropes) were sent to Sudbury to be microprobed – one was a G9 and the other a G10. No other work could be located in the Kirkland Lake Mines office or in other resources.

GEOLOGY:

Claim 4282176 sits enclosed by Nipissing diabase. The Schumann Lake Arch (fault) running in a northeast/southwest direction juts towards the northwest corner at #4 post. At 90° to that of another fault intersecting the Schumann Lake Fault, runs through the claim from north \rightarrow south through the two small round lakes situated in a steep sided valley, ~1km to the west is a contact with Gowganda Formation, to the east ~500m and north ~1km is a contact with a mafic metavolcanic intrusion.

FIELDWORK:

Traverse 1: fieldworkAugust 18, 2016Graeme Bishop, Mike Barrette

Traverse write-up provided by Graeme Bishop:

After parking the truck at the access road, on high ground, where Chopin Lake can be seen downhill to the east, Mike Barrette and I set out into the bush, followed by Mike's old black dog. From the road, we headed west into the bush, intending to b-line approximately half a kilometer to reach WP1 at the south edge of claim 4284088, which is adjacent to the more westerly claim no. 4282176, located south of Schumann Lake. We crossed south of claim no.4284088 and angled west-south-west another half kilometer to WP2, thereby skirting the south shoulder of a hill which rises between Mozart Lake and Schumann Lake, to reach the target sampling area of claim no. 4282176. Covering this ground was extremely physically demanding, owing to the rough nature of the topography encountered during the traverse. While the access road on which we parked was old and overgrown, and liberally punctuated by small boulders and uneven ground, the forgotten surveyors of that road at least made good use of the high ground of the Lorrain Valley. However, immediately upon leaving the access road, and continuing on foot, we encountered downhill slopes toward WP1, characterized by steep west-facing outcrops of bedrock, severe enough in grade to limit soil-accumulation. These showings of bedrock were sometimes moss covered, but often exhibited only lichen growth, and in the sections which were covered by denser plant growth, more often than not were subject to massive 'blow-downs'. These blow-downs were extensive and trended north-south in their swath, and had to be crossed in order to reach our target area.

It cannot be overstated how problematic an obstacle the blow-downs were during this traverse: sometimes, Mike and I were forced to crawl at length underneath the fallen tangle of trees and dragging our gear behind us, sometimes we were forced to walk carefully along the lengths of downed trunks six or more feet above the tangle, while at other times required to navigate the long way around certain impassible sections. The dog was often out of sight, having found other ways forward which were impassable to us. The primary trait of these blowdown areas was their near-impenetrable character.

At the base of the hills and blowdowns, Mike and I encountered massive cedar trees and ground that could be characterized as cedar-swamp, but which was mostly dry at the time of the traverse; very little undergrowth, and soil that was primarily composed of mulch from decaying cedar wood and black organic muck. We continued through this low ground cedar dominated area, in which the underbrush grew denser the farther west we travelled, until we reached another rise in ground which mounted to high tree covered outcrops. We had travelled too far south and missed WP2, instead reaching the summit of a west-facing set of sheer vertical cliffs, which rose eighty to a hundred feet above the stereo of our intended sample sites. We backtracked north and east, and reached the sample area at WP2, which is shown on Google Earth as a north-south trending creek/seasonal lake system extending south from Schumann Lake. At the time of our traverse, the water was low and much of the open area was covered in tall grass. The ground was composed of exposed, angular, medium- to large-sized boulders, fitted at the edge of the bush by black muck and detritus, where we entered on the south east 'shore' of the open area.

From WP2, we worked our way due south toward WP3, with the tall cliffs to our left side. In this area, the ground was littered with boulders and talus from the cliffs; the rocks ranged in size, with some being very large pieces. The creek was submerged beneath the broken rock, and it was impossible to tell where the water course ran, while cedar and spruce trees grew and left a blanket of organic debris on the rocks, and small holes in the ground threatened to twist

your ankle. The dog was tired after the blowdowns and climbing the shoulder of the cliffs, and had trouble navigating the traverse between WP2 and WP3. Approaching WP3, we entered another open-area, which would be a small lake during high water, but was dominated by hummocks of tall grass and smaller areas of open water, bordered by reeds and tall grass. We proceeded south, avoiding the waterholes by keeping to the broken rock at the base of the cliffs. Once we reached WP3, immediately to the south of this open area, we tried several times before acquiring a useful sample, and then backtracked to WP2, collected our cached samples, and hiked through WP1, and then back through the blowdown to the truck park area.

This traverse, including the hauling-out of 70-80 pounds of samples, would have been impossible for a single person to accomplish. Between Mike and I, we managed to collect and carry the samples, but our egress from the target area and return to the truck could properly be described as a 'slog' through very difficult bush.

Pertaining to the gathering of the soil samples collected during this traverse: In the areas of cedar swamp, all the holes we dug exhibited 2-2.5 feet or deeper of black muck and cedar mulch before reaching the post-glacial alluvium underneath. Wide holes were necessary to collect sufficient till material at the base of the organic soil, and holes would quickly refill with water. In the areas which were on higher ground, brownish soil was encountered 0.5-1.5 feet under the organic detritus. The brownish soil was underlain first by dark grey clay, and sometimes a thin lens of white clay beneath all. In the talus-covered area of the Schumann-lake drainage, good samples were incredibly hard to obtain; requiring the removal- by hand- of many rocks to reach the soil (presumed) underneath, most often our attempts reached only groundwater with more rocks underneath. Where we were able to collect soil, it was water-saturated and 'soupy', and having the appearance of organic soil, with only a fraction of the whole being glacial till.



Traverse 1: Map A

6

L 4282176



Traverse 1: field notes August 18, 2016

Sample #	Coordinates
	17T UTM
S1	0601092_E
	5240418_N
S2	0601113_E
	5240454_N
S3	0601185_E
	5240796_N
S4	0601207_E
	5240933_N

Graeme Bishop, Mike Barrette

Location #	Coordinates 17T UTM
Corner post #1	0601410_E / 5241602_N
Corner post #2	0601444_E / 5240393_N
Corner post #3	0601064_E / 5240403_N
Corner post #4	0600621_E / 5241590_N

Location #	Coordinates 17T UTM
WP1	0601586_E / 5241125_N
ТР	0602430_E / 5241204_N

RESULTS:

MICROSCOPE PHOTOS OF KIMs:



View of barren concentrates



Picked grains

As described in the traverse notes, the rather poor results are reflected in the difficulty of the sampling terrain.

This claim was staked in response to the excellent results I'm getting on other targets in the area, similar in geology to Lac de Gras, where virtually all kimberlite pipes are found under small round lakes. A G10 was found just down-ice of the nearby lake on Claim 4284088. Claim 4282176 has one very similar lake on the northwest part of the claim, and two smaller semi-round lakes in a steep-sided valley which would have restricted the size of a volcanic kimberlite pipe intrusion. Being in an area with major faults and a cross fault through the centre of the lakes, as well as kimberlites found nearby, I shall continue to work on these targets.

RECOMMENDATIONS FOR FUTURE WORK:

Because of the difficulty sampling in this boulder strewn and/or murky area, a Goldspear survey might work very well to locate magnetite pockets in the much, which might have originated in a kimberlite and therefore improve chances of finding KIMs (or separately any conductive metallic grains down to <100 mesh). Fortunately, I have two Goldspears.

Further, partly because of the difficult access, the new lake has not been tested down-ice for KIMs and a sampling program is being considered. A drone flyover is also planned to get a better view of the rough terrain for future prospecting.

[See References & Resources, page 25, for more detailed information]

EXPENSES of Assessment Work Claim L 4282176 (Aug 18, 2016 to Nov 27, 2017)

Work Type	Units of work	Cost per unit of work	Total Cost
Till sample collection x 1 traverse	2 man days (Graeme Bishop: 1day/ Mike Barrette: 1 day)	\$285 per day	\$ 570
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	Tony Bishop: 1 day	\$500 per day	\$ 500
Clerical support for reports & technical computer support	Chloë Bishop	\$200	\$ 200
Transportation based on OPA OEC rate	1 return trip to claim 227 km	\$0.50 per km x 227 km= \$114	\$ 114
Food re 1 traverse	2 people x 1 day	\$35/day	\$ 70
	TOTAL VALUE OF	ASSESSMENT WORK	\$3,454

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

13

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 (Google Earth)





14



Map 2



Мар З





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 18



19



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













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

Statement of Qualifications:

I, Brian Anthony (Tony) Bishop p/I #A44063 of Kenogami (RR#2 Swastika, ON), hereby certify as follows concerning my report on Claims L 4282176 in Gillies Limit, 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:

B_ A. Bisp

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 4282176: Chloë Bishop, Graeme Bishop, Jesse Bishop, Shelley Bishop, David Crouch, 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.