

We are committed to providing [accessible customer service](#).

If you need accessible formats or communications supports, please [contact us](#).

Nous tenons à améliorer [l'accessibilité des services à la clientèle](#).

Si vous avez besoin de formats accessibles ou d'aide à la communication, veuillez [nous contacter](#).

COCO EAST PROJECT

**WORK REPORT OF THE
2022 EXPLORATION PROGRAM ON
THE COCO EAST PROJECT,
SCHREIBER AREA, ONTARIO
For
FIRST CLASS METALS CANADA INC.**

**NTS Map sheet 42D14, 42E03
Rope Lake, Pays Plat Lake, Upper Aguasabon Lake and Lower Aguasabon Lake Areas**

-TABLE OF CONTENTS-

1.0 Summary.....	1
2.0 Introduction.....	1
2.1 Property Description, Location and Access	1
2.2 Climate, Local Resources, Local Infrastructure and Physiography	2
2.3 Personnel.....	2
3.0 Geology.....	6
3.1 Regional Geology.....	6
3.2 Local and Property Geology	6
4.0 Exploration History.....	9
5.0 2022 Exploration Program.....	12
5.1 Introduction.....	12
5.2 Results	12
6.0 Discussion of Results and Recommendations	17
6.1 Discussion of Results.....	17
6.2 Recommendations	17
7.0 Statements of Qualifications	19
8.0 References.....	21

-APPENDICES-

Appendix I	Rock Sample Description Table (Table 1)
Appendix II	Rock Assay Certificates
Appendix III	Lab Analytical Descriptions
Appendix IV	List of Mining Cell-Claims (Table 2)
Appendix V	Statement of Expenditures and Expenditures per Claim (Table 3)
Appendix VI	Daily Logs (Table 4)
Appendix VII	Map Sheets

-MAPS-

Coco East Property 2022 Prospecting and Grab Sampling
Coco East Tracks

-LIST OF FIGURES-

Figure 1- General Location Map3
Figure 2- Coco East Property Location and Access Map.....4
Figure 3: Coco East Property Cell-Claim Map5
Figure 4: FCM Properties Regional Geology.....8
Figure 5: Proposed Sampling and Target Areas..... 18

1.0 -SUMMARY-

From June 15th to 22nd, 2022, a prospecting program was carried out on First Class Metals Canada Inc.'s Coco East Property, located 20 km north of Schreiber, Ontario (see Figures 1, 2). The Property is comprised of 30 cell-claims totaling 630.8 hectares (see Figure 3).

The Coco East Property is situated within the Hemlo-Schreiber greenstone belt within the Wawa Sub-province, a division of the Precambrian Superior Province of the Canadian Shield (see Figure 4). The Big Duck Lake Porphyry along the north shore of Big Duck Lake (see Figure 5) is associated with numerous gold occurrences in the area, including the Coco-Estelle Deposit west of the lake (53,700 tons of **10.7 gpt Au**), and the Big Birch Occurrence on the east shore of Big Duck Lake on the current Property (**0.02 oz/ton (0.7 gpt) Au, 0.1 oz/ton (3.4 gpt) Ag, 0.02% Cu**). Mapping by government and industry has outlined several thin units of porphyry on the Property.

Prospecting on the east shore of Big Duck Lake returned up to **89 ppb Au**. Values of up to **3.6 ppm Ag, 7 ppm As, 25 ppm Bi, 1870 ppm Cu, 476 ppm Mo, 17 ppm Te** and **124 ppm W** were also obtained in this area, which are often pathfinders for intrusion-related or orogenic gold mineralization.

While gold values to date are not high, the presence of anomalous gold with anomalous pathfinders, as well as the numerous mapped porphyry units on the Property, indicate that the Property remains prospective and requires more systematic work. A campsite on the east shore of Big Duck Lake is proposed for the next phase of work. A lake sediment sampling program is being carried out on ponds present on the Property as of the report date.

2.0 -INTRODUCTION-

First Class Metals Canada Inc. acquired the Coco East Property in October 2021. The Property is situated proximal to the Big Duck Lake Porphyry along the north shore of Big Duck Lake which is associated with numerous gold occurrences in the area, including the Coco-Estelle Deposit west of the lake (53,700 tons of **10.7 gpt Au**), and the Big Birch Occurrence on the east shore of Big Duck Lake on the current Property (**0.02 oz/ton (0.7 gpt) Au, 0.1 oz/ton (3.4 gpt) Ag, 0.02% Cu**). Mapping by government and industry has outlined several thin units of porphyry on the Property. Emerald Geological Services carried out a prospecting program from June 15th to 22nd, 2022, details of which are presented in the following report.

2.1 PROPERTY DESCRIPTION, PERMIT, LOCATION AND ACCESS

First Class Metals Canada Inc.'s Coco East Project is located north of Lake Superior in northeastern Ontario (see Figure 1). The property is situated approximately 20 kilometres north of the town of Schreiber (see Figure 2).

Access for the 2022 exploration program was by truck and ATV. The property can be reached by traveling approximately 32 km north along the Longlac Backroad from Terrace Bay, then turning left (southwest) onto a network of trails which must be traveled by ATV for approximately 6 km.

These trails end about 300 meters west of the northwest part of the Property, from which point walking traverses much be carried out (see Figure 2).

The Coco East Property is comprised of 30 cell-claims, totaling 630.8 hectares. See Figure 3 and Table 2, Appendix IV for the list of claims.

2.2 CLIMATE, RESOURCES, LOCAL INFRASTRUCTURE AND PHYSIOGRAPHY

The Coco East Project is located within the Canadian Shield, which is a major physiographic division of Canada. The property is situated in an area of swamps, small to moderate-sized lakes, and moderate to steep hills, with scattered to locally abundant outcrop. Elevation across the project area ranges from 430 to 510 m.

The Property is covered with a thick secondary growth of birch, balsam fir, black spruce, red cedar and some jack pine and poplar. The underbrush can be very dense with intergrowths of maple, alder and hazel.

The Coco East Property is situated approximately 20 km north of the town of Schreiber, Ontario (population ~1050) and 23 km north-northwest of the town of Terrace Bay (population ~1600).

Schreiber is approximately 150 km east-northeast of Thunder Bay, Ontario, along the Trans-Canada Highway 17. Thunder Bay is serviced by many airlines, with daily flights to major cities in Canada such as Toronto and Winnipeg, allowing easy connections to other Canadian cities and international destinations.

The Superior Lake Zinc and Copper Project is located about 25 km north of Schreiber, consisting of the Winston Lake and Pick Lake Deposits. The Winston Deposit was mined between 1988 and 1998, producing 3.3 Mt at **14% Zn, 1% Cu, 1 g/t Au and 30 g/t Ag**, closing in 1998 due to low zinc prices. The project is currently in the Advanced Exploration Phase with Indicated and Inferred Resources of 2.62 Mt outlined (www.metallumzinc.com/projects).

Climate in the area is typical of Northern Ontario, with cold winters and warm summers. Average January minimum temperatures range from -18°C to -32°C, and average July temperatures are between 24°C and 32°C. Exploration work can be carried out (subject to snow and freezing) for most of the year. Certain mapping, mechanized stripping, and soil sampling activities are best performed in snow-free conditions, whereas drilling can occur any time of the year.

2.3 PERSONNEL

The 2022 Exploration Program was carried out by Frederick (Bobby) Lowndes and Doug Kakeaway of Emerald Geological Services from June 15th to 22nd, and Bruce MacLachlan and Coleman Robertson of Emerald Geological Services on Sept 8th.



480000

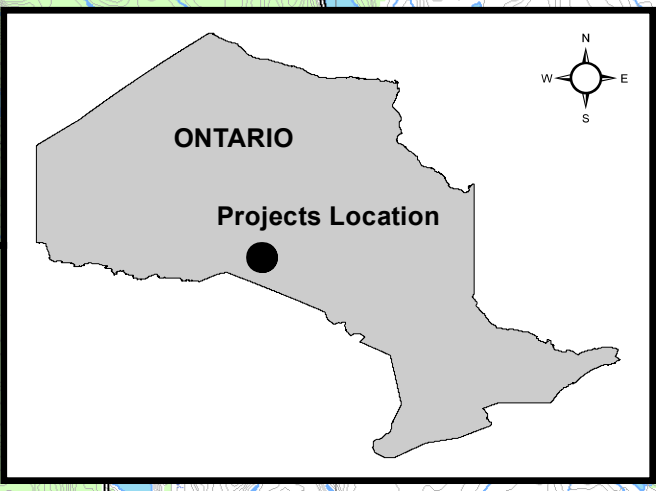
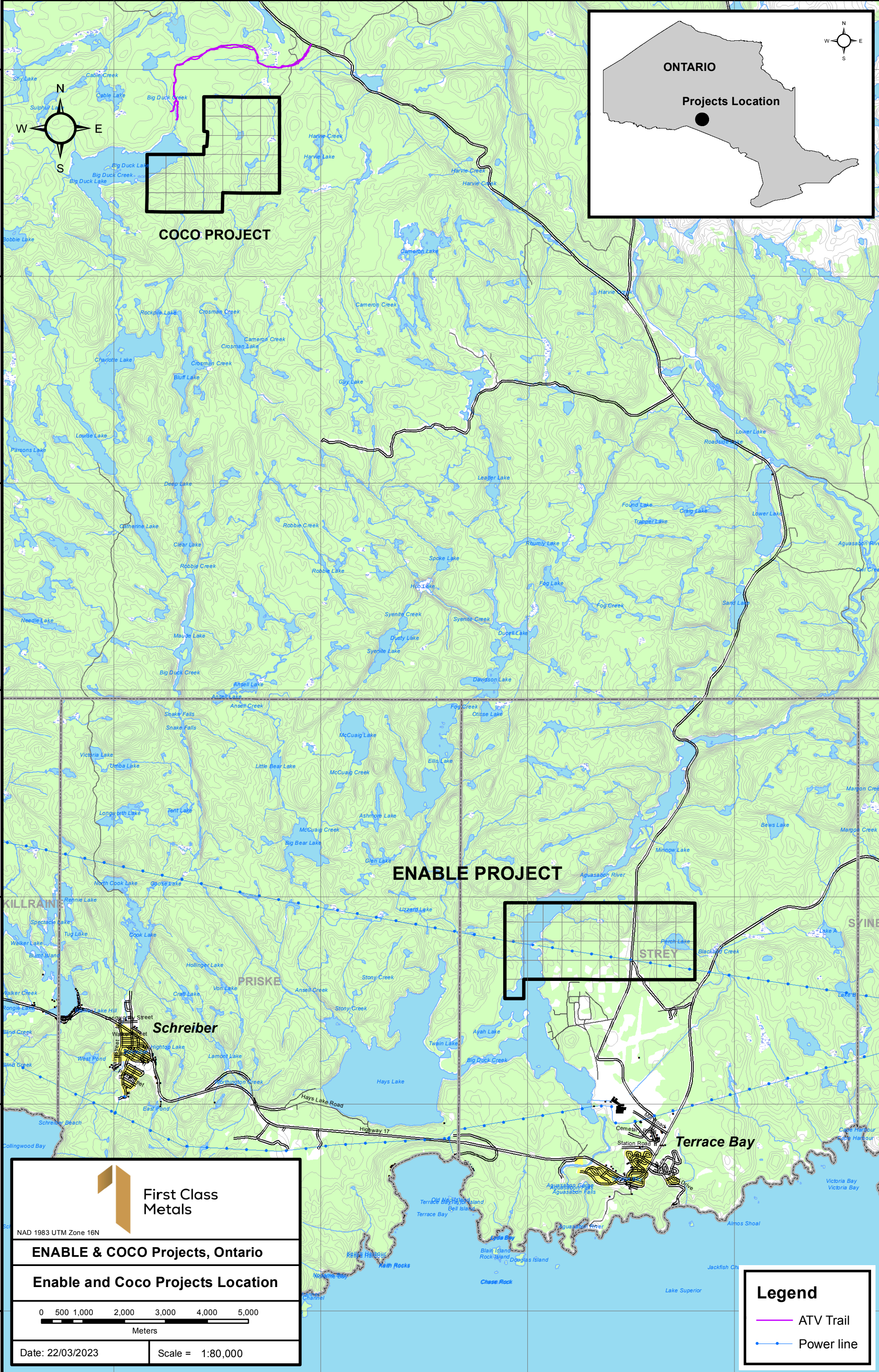
485000

490000

495000

5430000
5425000
5420000
5415000
5410000
5405000
5400000

5430000
5425000
5420000
5415000
5410000
5405000
5400000




COCO PROJECT

ENABLE PROJECT

STREY

Schreiber

Terrace Bay

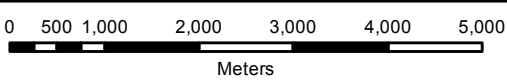


First Class Metals

NAD 1983 UTM Zone 16N

ENABLE & COCO Projects, Ontario



Enable and Coco Projects Location



Meters

Date: 22/03/2023 Scale = 1:80,000

Legend

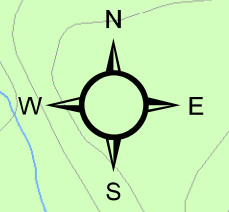
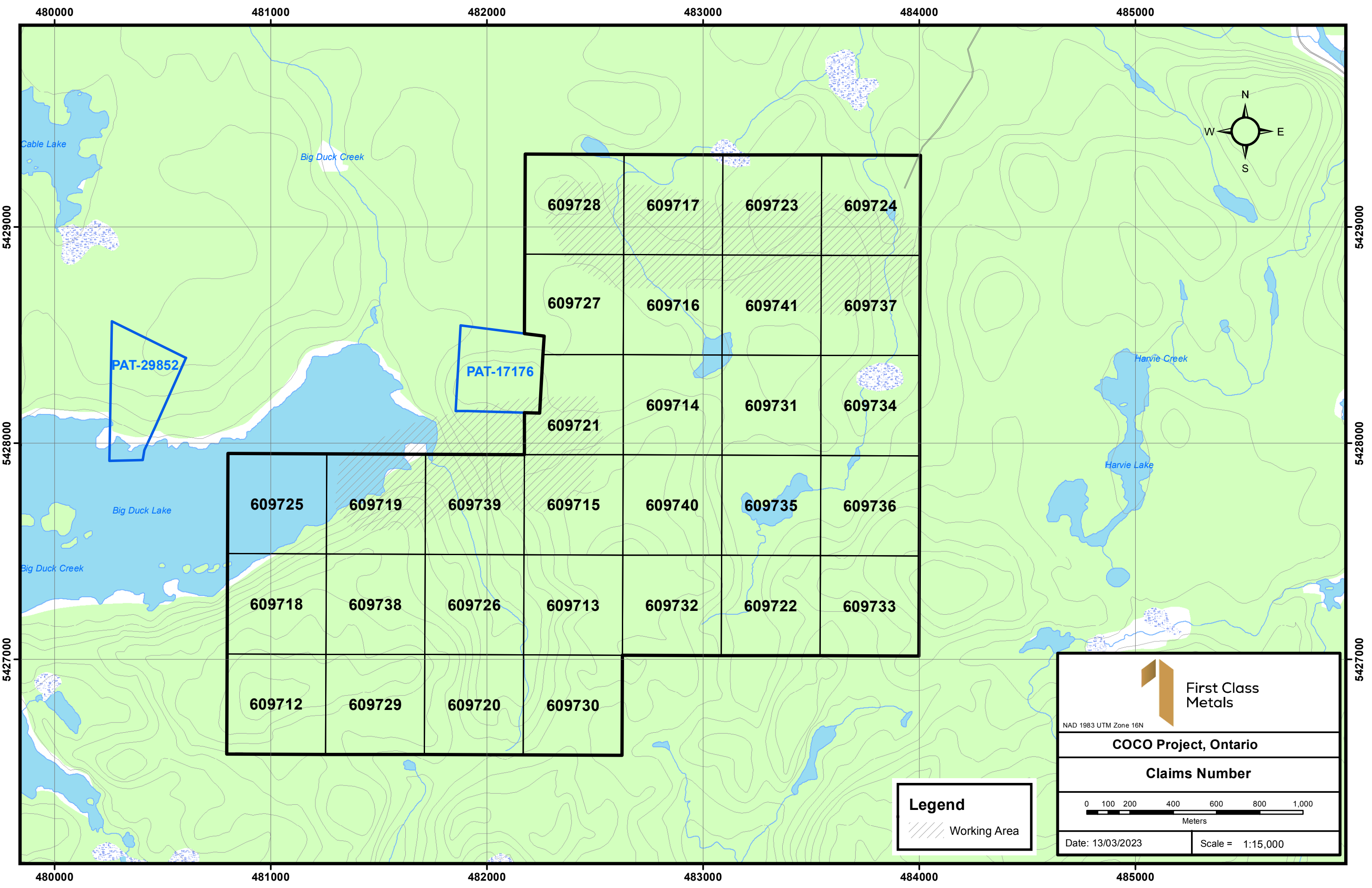
-  ATV Trail
-  Power line

480000

485000

490000

495000




PAT-29852

PAT-17176

			609728	609717	609723	609724	
			609727	609716	609741	609737	
			609721	609714	609731	609734	
609725	609719	609739	609715	609740	609735	609736	
609718	609738	609726	609713	609732	609722	609733	
609712	609729	609720	609730				

Legend

Working Area

 **First Class Metals**

NAD 1983 UTM Zone 16N

COCO Project, Ontario

Claims Number

0 100 200 400 600 800 1,000
Meters

Date: 13/03/2023 Scale = 1:15,000

3.0 -GEOLOGY-

3.1 REGIONAL GEOLOGY

The Coco East Property is located within the Hemlo-Schreiber greenstone belt within the Wawa Sub-province, a division of the Precambrian Superior Province of the Canadian Shield. The following are relevant excerpts from Lucas and St-Onge (1998):

“The Hemlo and Schreiber greenstone belts along the north shore of Lake Superior are parts of a once contiguous greenstone belt now separated by the Middle Proterozoic Port Coldwell alkaline complex. The Hemlo greenstone belt in the east consists of northern and southern metavolcanic-metasedimentary sequences separated by the Lake Superior-Hemlo Fault, part of a major east-west shear zone that hosts major gold deposits. The belt is bounded on the north by intrusive rocks of the Black Pic and White Lake batholiths, and on the south by the 2719 Ma gneiss of the Pukaskwa complex. The northern supracrustal sequence consists of mafic volcanic rocks with mafic and ultramafic intrusions, and an upper sequence of mafic volcanic rocks with 2772 Ma felsic tuff that are in eastward facies transition with epiclastic sedimentary rocks. The southern sequence is lithologically similar, but the calc-alkaline felsic pyroclastic rocks are 2695 Ma.

Granite intrusions have ages of 2688 to 2644 Ma and 2678 to 2677 Ma. The 2688 to 2684 Ma plutons were emplaced after early thrusting and folding (D₁) and accompanied, or post-dated, the major phase of isoclinal folding and formation of regional penetrative foliation, possibly associated with sinistral shearing (D₂). The younger, 2678 Ma intrusions are tentatively correlated with amphibolite-facies metamorphism and with the early stages of major dextral ductile shearing (D₃), notably along the Lake Superior-Hemlo fault zone. Metamorphic grade and strain state are generally low in the west and increase eastward toward Hemlo.

The rocks and structures of the Schreiber greenstone belt are generally similar to those of the Hemlo greenstone belt. A felsic metavolcanic rock associated with volcanogenic massive sulphide deposits in the north is 2723 Ma. Walker (1967) described a northward increase in metamorphic grade from biotite-, through garnet-, to sillimanite-grade metasedimentary rocks. This gradient is in accord with the regional pattern of greenschist facies and amphibolite facies in the Hemlo and Schreiber belts, upper amphibolite facies in the Manitouwadge greenstone belt, and low-pressure granulite facies in the adjacent Quetico Subprovince (Pirie and Mackasey, 1978)” (p 102).

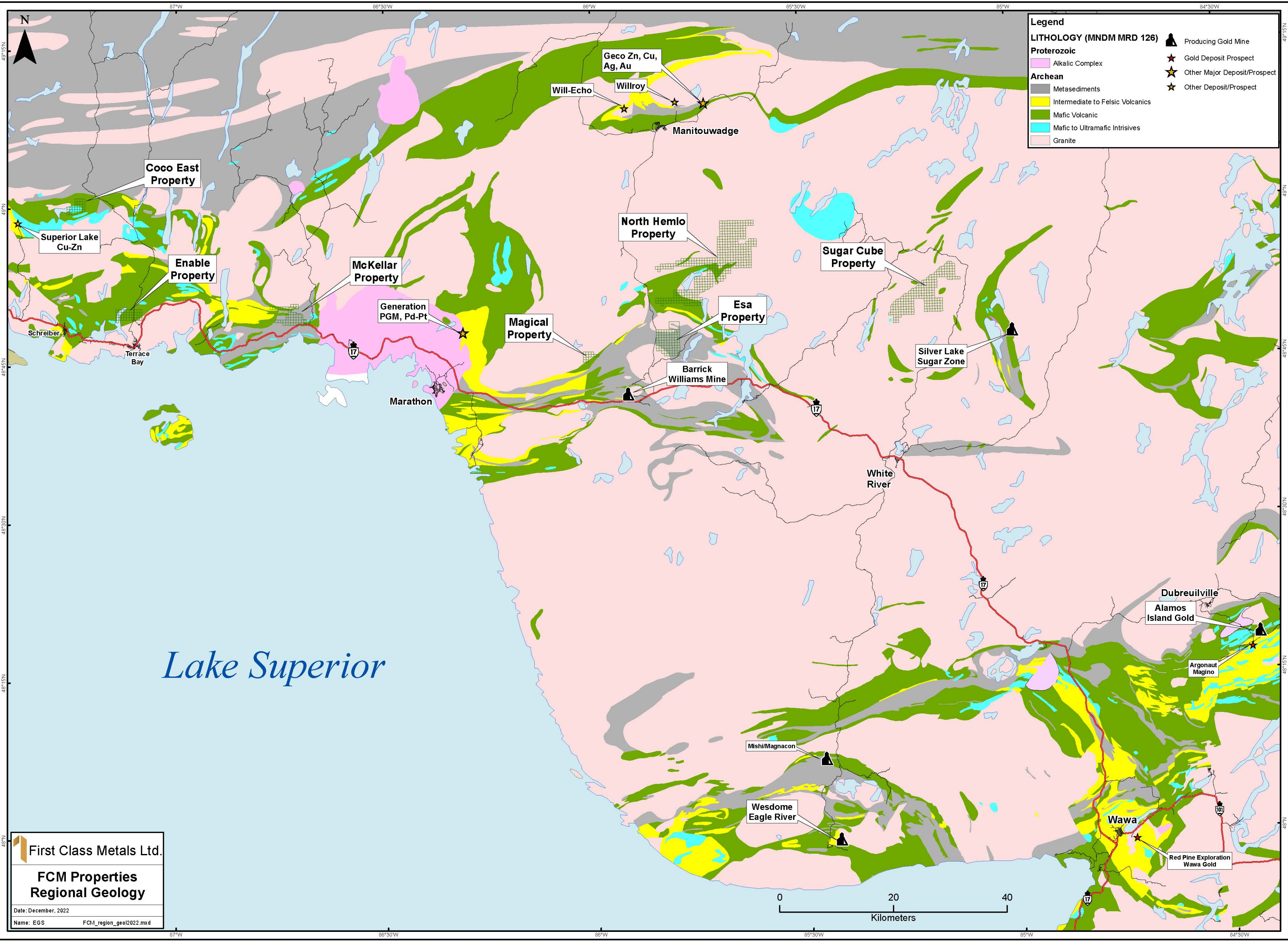
3.2 LOCAL AND PROPERTY GEOLOGY

The Coco East Property is located in the northwest part of the Hemlo-Schreiber greenstone belt, immediately east of Big Duck Lake, with a few of the western claims covering part of the lake.

Government maps corresponding to the project area include M2023 and Map 1 of 5 from Open File Report 5692. The former covers an area that overlaps with the western part of the property, while the latter covers the rest of the property to the north and east. M2023 shows that the northern shore of Big Duck Lake and (possibly the northern part of the lake) is underlain by an elongate east-northeast-trending intrusion of quartz porphyry to quartz feldspar porphyry (Big Duck Lake Porphyry) The property claims south of Big Duck Lake are underlain predominantly

by mafic volcanics in the form of hornblende schist, with occasional pillowed volcanics, volcanic breccia, 'metadiabase' and hornblende-feldspar gneiss. Several thin units of quartz porphyry to quartz feldspar porphyry are mapped, trending predominantly east-west. Map 1 from OFR 5692 shows that the northern and eastern part of the property is underlain predominantly by aphanitic and fine-grained mafic volcanic flows, with several outcrops of amygdaloidal flows and amphibolite / amphibolite schist mapped in the central part of the property. Outcrops of gabbro to hornblendite are mapped locally.

Wells (1984¹) provides more detailed mapping of most of the property, excluding the far eastern part of the property. Mapping shows a large mass of gabbro south of Big Duck Lake, with an east-west sliver branching off to the east in the central part of the current property (these perhaps correspond to the 'hornblende schist' and 'amphibolite' of the government maps). Numerous approximately east-west units of quartz feldspar porphyry are mapped throughout the property.



Legend

LITHOLOGY (MNDM MRD 126)

Proterozoic

- Alkalic Complex

Archean

- Metasediments
- Intermediate to Felsic Volcanics
- Mafic Volcanic
- Mafic to Ultramafic Intrusives
- Granite

Producing Gold Mine

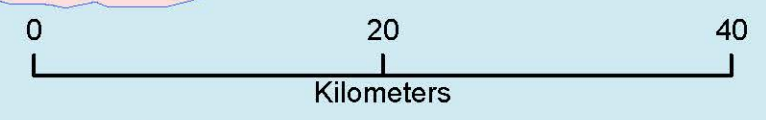
- Producing Gold Mine
- Gold Deposit Prospect
- Other Major Deposit/Prospect
- Other Deposit/Prospect

First Class Metals Ltd.

**FCM Properties
Regional Geology**

Date: December, 2022

Name: EGS FCM_region_geol2022.mxd



Lake Superior

Geco Zn, Cu, Ag, Au

Will-Echo

Willroy

Manitouwadge

Coco East Property

Superior Lake Cu-Zn

Enable Property

McKellar Property

Generation PGM, Pd-Pt

Magical Property

North Hemlo Property

Esa Property

Sugar Cube Property

Silver Lake Sugar Zone

Marathon

Barrick Williams Mine

White River

Dubreuilville

Alamos Island Gold

Argonaut Magino

Mishi/Magnacon

Wesdome Eagle River

Wawa

Red Pine Exploration Wawa Gold

4.0 -EXPLORATION HISTORY-

Severin (1983) provides further background information for the exploration history of the area prior to 1982:

“Gold, associated with quartz-carbonate veins carrying variable amounts of Cp-Sph-Py-Po-Mo and W, was first discovered in the Big Duck Lake area in 1906, fourteen years after the discovery of the Zenith sphalerite deposit which is located at Kenabic Lake situated approximately 8 km to the WSW. Sporadic work by a variety of individuals during the period 1907 – 1953 suggested that the metal values in the Big Duck Lake area have an erratic distribution and interest subsequently declined over the years.

The discovery of the Geco Cu-Zn-Ag orebody in 1954 revived interest in the Big Duck Lake area but nothing of economic significance has been discovered in the immediate area until 1982.

The Zenith deposit was developed by Zenmac Exploration during the period 1966 – 1970 and produced approximately 181,000 tons of 16.5% zinc.

The discovery of the Winston massive sulphide deposit by Corporation Falconbridge Copper in 1982 has triggered intensive staking in the region and regional exploration in the Big Duck Lake area has once again rejuvenated.”

The Big Duck Lake Porphyry body, mostly west of the current Coco East Property, runs the length of Big Duck Lake (on the north side) and further west, and has been subject to much exploration over the years. The Coco-Estelle Deposit west of the lake occurs in hornblende schist at the northern contact of the porphyry, and a small reserve of 53,700 tonnes at **10.7 gpt Au** was outlined historically (Ontario Geological Survey, 1985).

1954: United Montauban Mines Ltd. carried out a ground electromagnetic survey which overlapped with the southwest part of the current Coco East Property. Several east-northeast conductive trends were outlined. It was concluded that these conductors were unlikely to be prospective for significant base metal mineralization but might be for gold mineralization (Sharpe Geophysical Surveys Ltd. 1954).

1982: During July, Corporation Falconbridge Copper carried out magnetic and electromagnetic surveys in the area which overlapped with much of the current Coco East Property. One ~east-west conductor (#15) was discovered in the central part of the current claims east of Big Duck Lake. Variations in magnetic signature appeared to reflect changes in rock type, with a gabbroic sill and possibly quartz feldspar porphyry having higher magnetic signatures than the surrounding mafic volcanics and sediments (Severin 1983, file 42D14NE0079 (Mag) & Riverin 1983, file 42E03SE0014 (EM)).

1983: The OGS conducted a field visit to Big Duck Lake and sampled historical pits close to the east shore of the lake, on the current Coco East Property (the Big Birch Occurrence). The pits were excavated by H. Larsen from 1914-1916. Samples returned up to **0.02 opt Au (0.7 gpt Au)**, **0.10 opt Ag (3.4 gpt Ag)**, and **0.02% Cu**. According to Schnieders et al. (1996), the showing is hosted in massive to pillowed mafic metavolcanic flows with quartz-calcite veinlets containing pyrite and some chalcopyrite (Ontario Geological Survey 1991, MDI42E03SW00012).

1983-1984: In 1983, Corporation Falconbridge Copper carried out a lithochemical survey on the Big Duck Lake area claims, overlapping with most of the current Coco East Property. It appears from the sampling map that several Zn anomalies **>100 ppm** were discovered east of Big Duck Lake on the current property, and a few anomalous trends were outlined. The highest Zn values of the program were obtained in rocks immediately underlying an iron formation north of Big Duck Lake northwest of the current property (Wells 1984¹, file 42D14NW0014).

Geological mapping at 1:1000 scale was carried out during the summers of 1983 and 1984. Mafic flows interlayered with gabbroic sills were found to predominate south of Big Duck Lake, while an east-west belt of felsic QFP sills and extrusive material was found to be centered on Big Duck Lake. To the north, mapping showed that the volcanics evolve into intermediate to felsic and lapilli tuffs interlayered with mafic flows. North of Cable Lake (smaller lake to the north of Big Duck Lake and west of the current Coco East Property), the rocks transitioned into mafic flows interlayered with metasediments, including iron formation, bounded to the north by medium-to-coarse-grained granite (Wells 1984², file 42E03SE8252).

Falconbridge drilled 3 holes totaling 345m east of Big Duck Lake in March 1984, testing previously discovered HEM anomalies. Each hole intersected 3 intervals of quartz feldspar porphyry up to 23.55m, containing minor pyrite and minor quartz veining overall. Otherwise the holes intersected mafic volcanics or metasediments, possibly including some iron formation. No samples or assays are reported (Corporation Falconbridge Copper 1984, file 42E03SE0013).

1985-1987: In 1985, Golden Range Resources Inc. carried out a soil geochemical survey on north-south gridlines on its Zenmac Property, mostly east of the current Coco East Property, but overlapping with the eastern part of the current property, west of a small lake called Harvie Lake. Two of the main targets were an east-west volcanic-sedimentary contact trending east-west across the Zenmac property, and veining/carbonate alteration related to the northwest-trending Harvie Creek Fault, containing anomalous gold and copper. Samples were analyzed for Cu, Zn and Au. An east-west Cu anomaly was identified (values of **90** and **112 ppb Cu**) in what is now the northeast corner of the current property, roughly coincident with anomalous Zn **>100 ppm** and anomalous Au up to **35 ppb**). A few lesser Cu, Zn and Au anomalies were located further to the south on these lines (Golden Range Resources Inc. 1985, file 42E03SE0002).

Detailed mapping was also carried out on the Zenmac Property. On what is now the eastern part of the Coco East Property, mafic volcanics with occasional felsic dykes were mapped. 236 samples were collected overall. Results indicated a correlation between copper and gold values, with the higher gold values occurring in the Harvie Creek area east of the current property (Neelands 1985, file 42E03SE0003). A horizontal loop electromagnetic and magnetic survey was also carried out during the winter of 1986-1987 (Barnes 1988, file 42E03SE0008).

1997-1998: Battle Mountain Canada Ltd. conducted a ground magnetic survey in 1997, followed by an IP survey in 1998, on their Big Duck Lake Property. The eastern limit of the surveys overlapped with the northern part of the current Coco East Property. The IP Survey yielded east-west chargeability anomalies presumably bound by stratigraphy, and resistivity anomalies thought to represent intrusive rocks, in the central part of the eastern lines (Johnston and Daigle 1998, file 42E03SE2001).

2003: Prospectors Stephen and Michael Stares and Hayward Critchley collected 60 grab samples around the shores of Big Duck Lake. The best result was **13.5 gpt Au** on an island in the lake, west of the current Coco East Property. 4 samples on the east shore of the lake were collected on the current property, but no assay results are given. This is approximately the location of the Big Birch Occurrence mentioned above (Stares 2003, file 42E03SE2003).

2006-2007: Tri Gold Resources Corporation conducted a program of geological mapping and sampling, trenching and diamond drilling on its Big Duck Lake Property. Most of the work and all the drilling occurred west of the current Coco East Property, targeting the Big Duck Lake Porphyry body. Some mapping in the eastern part of the historical property overlaps with the northern part of the current property, however. Predominantly foliated mafic volcanics with lesser gabbro were mapped on the current property (Kutluoglu 2007, file 20000002793).

5.0 -2022 EXPLORATION PROGRAM -

5.1 INTRODUCTION

From June 15th to 22nd, 2022, a prospecting program was carried out on the Coco East Property of First Class Metals Canada Inc. Work was carried out primarily by one team from Emerald Geological Services (EGS): Frederick (Bobby) Lowndes and Doug Kakeeway. Bruce MacLachlan and Coleman Robertson of EGS attempted to visit the Property on September 8th but experienced delays on the ATV trail.

GPS tracks and sample locations were recorded using a handheld Garmin GPS displaying UTM: NAD 83 Zone 16 metric coordinates. Tracks were downloaded, saved as separate files by date and type (e.g. foot traverse, truck) and plotted on the various Map Sheets. All point data was entered in an Excel database then imported into MapInfo / Discover software.

A total of 46 grab samples were collected for gold and multi-element ICP analysis. Samples collected were individually bagged, labelled and photographed in the field, and a small 'rep' (representative piece) of each sample was collected. Sample descriptions were recorded by notebook in the field and entered into Excel later on. Rice bags full of samples were shipped to Activation Labs (Actlabs) in Thunder Bay via Ontario Northland's bus service. Gold analysis was by fire assay (FA) and atomic absorption (AA) finish (Actlabs code 1A2-50). Multi-element analysis was by total digestion with inductively-coupled plasma – optical emission spectroscopy (ICP-OES) finish (Actlabs code 1F2-TBay).

Coordinates and descriptions of Rock-grab samples can be located in Table 1, Appendix I. Rock sample assays and Actlabs analytical descriptions are located in Appendices II and III respectively. Locations of samples relative to topography and property boundaries, as well as GPS tracks, can be viewed in Map Sheets, Appendix VII. Daily logs for the programs are located in Table 4, Appendix VI. Program expenditures and expenditures per claim (Table 3) can be found in Appendix V.

5.2 RESULTS

17 samples (705117-705126, 705166-705172) were collected at the east end of Big Duck Lake in claims 609719 and 609739, where two major linear topographical features intersect: the steep south shore of the lake which trends east-northeast-west-southwest, and a creek valley which trends south-southeast-north-northwest. These consisted generally of altered mafic volcanics with quartz veins up to 2.5 meters wide and up to 20% pyrite. Possible old blast pits were noted in two sampling locations (samples 705123 and 705171-705172). It is unclear if the Big Birch Occurrence itself was sampled; the closest samples to where the OMI (Ontario Mineral Inventory) data point plots are samples 705117 and 705169 ~40 m west of the point. 5 samples returned **>50 ppb Au** up to **89 ppb Au** (sample 705124). Samples also returned up to **3.6 ppm Ag** (705124), **7 ppm As** (705123, 705167), **25 ppm Bi** (705124), **1870 ppm Cu** (705124), **12.2% Fe** (705167), **476 ppm Mo** (705124), **17 ppm Te** (705126) and **124 ppm W** (705125).

Quartz veining in mafic volcanics, samples 705119-705122



Sample 705124, 89 ppb Au, 3.6 ppm Ag, 25 ppm Bi, 1870 ppm Cu, 476 ppm Mo



9 grab samples (705112-705116, 705162-705165) were collected from ~300 m to 600 m east of Big Duck Lake, along a generally north-northwest-facing hillside in claims 609739, 609721 and 609715. These consisted generally of locally sheared mafic volcanics with minor quartz veining and up to 3% pyrite, returning up to **36 ppb Au** (sample 705114). Samples also returned up to **180 ppm Cu** (705163), **15 ppm Mo** (705116) and **431 ppm Zn** (705113).

Sample 705116, quartz vein float, 15 ppm Mo



7 grab samples (705108-705110, 705157-705160) were collected ~1.2 km northeast of Big Duck Lake in claims 609716, 609717, 609727 and 609728, close to a northwest-southeast-trending creek. These consisted of mafic volcanics or gabbro with up to 2% pyrite, returning up to **46 ppb Au** (sample 705159). Samples also returned up to **178 ppm Cu** (705158), **15 ppm Te** (705158), and **11 ppm W** (705158).

12 grab samples (705101-705107, 705151-705152, 705154-705156) were collected in the northeast part of the Property in claims 609723, 609724 and 609741, in a roughly 100 by 500-meter east-northeast-west-southwest-trending corridor along roughly north to northwest-facing slopes. These consisted generally of mafic volcanics with quartz veining up to 60 cm and up to 1% pyrite, and two samples of quartz-eye porphyry with up to 1% pyrite (samples 705102, 705152). These returned up to **20 ppb Au** (sample 705151). Samples also returned up to **243 ppm Cu** (705151), **6 ppm Mo** (705151), **29 ppm Pb** (705151), and **17 ppm W** (705152).

Sample 705102, quartz-eye porphyry



1 sample (705153) was collected in the far eastern part of the Property in claim 609737, on the east side of a north-south creek valley. This was described as ‘dark blue micaceous schist’ in angular float and returned no interesting values.

6.0 -DISCUSSION OF RESULTS AND RECOMMENDATIONS-

6.1 DISCUSSION OF RESULTS

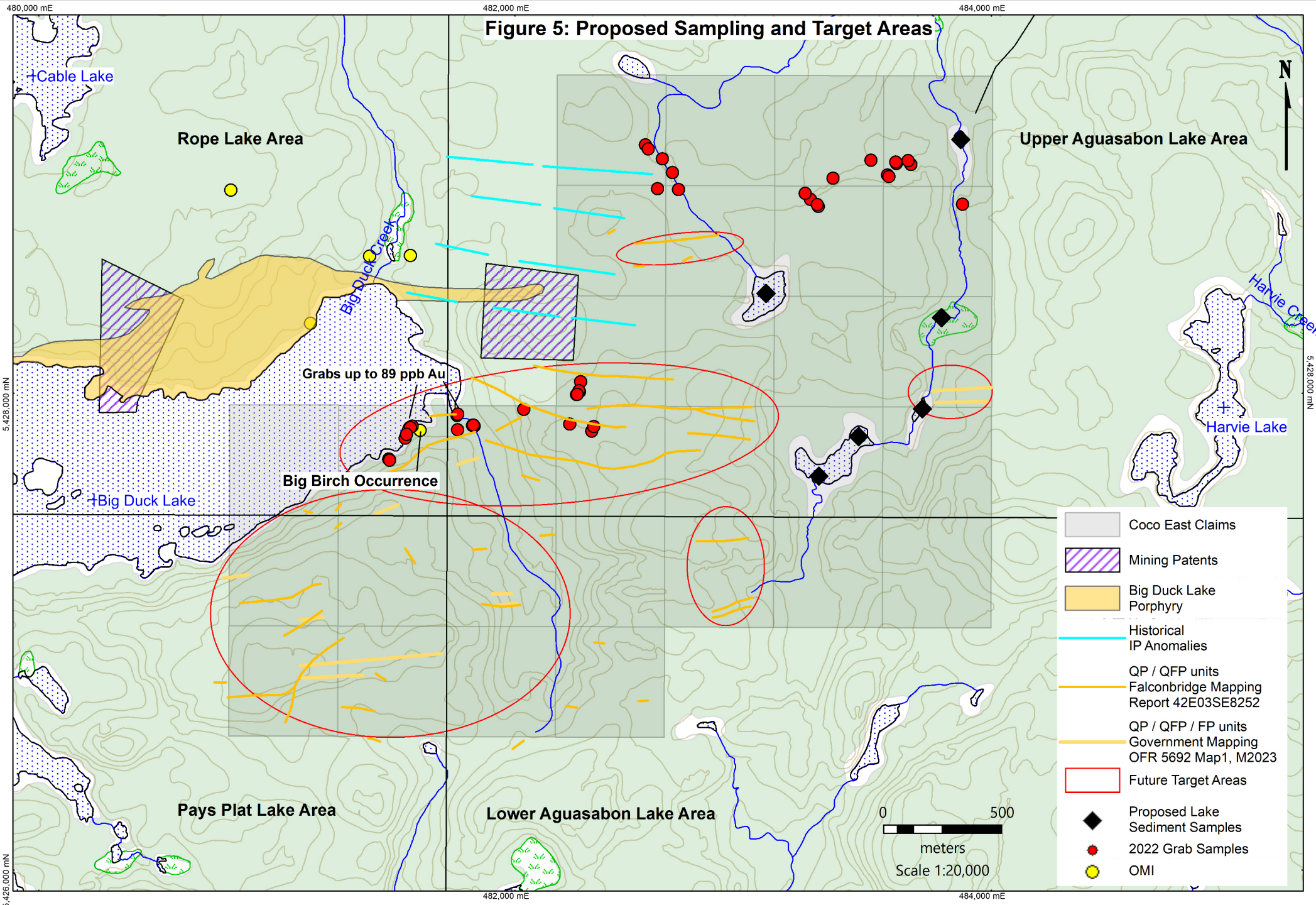
While Au values obtained to date are not strongly anomalous, they are associated with anomalous pathfinders for intrusion-related or orogenic gold mineralization (Ag, As, Bi, Te, Mo, Cu, W) and locally intense quartz veining in shear zones. There are also numerous mapped units of felsic porphyry on the Property which have not been thoroughly investigated. Therefore further, more systematic work is warranted.

6.2 RECOMMENDATIONS

Carry out lake sediment sampling during the winter (see ‘Figure 5: proposed sampling and target areas’ below). This work is ongoing as of the report date.

Set up a campsite on the east shore of Big Duck Lake for 1-2 weeks to conduct mapping, prospecting and sampling near and along strike from the Big Birch Occurrence and in other target areas (see Figure 5).

Figure 5: Proposed Sampling and Target Areas



- Coco East Claims
- Mining Patents
- Big Duck Lake Porphyry
- Historical IP Anomalies
- QP / QFP units
Falconbridge Mapping Report 42E03SE8252
- QP / QFP / FP units
Government Mapping OFR 5692 Map1, M2023
- Future Target Areas
- Proposed Lake Sediment Samples
- 2022 Grab Samples
- OMI

7.0 -STATEMENTS OF QUALIFICATIONS-

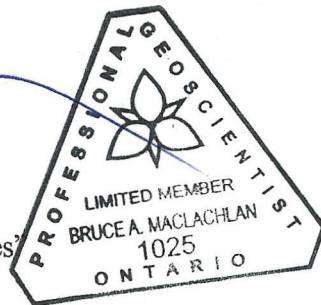
I, Bruce A. MacLachlan P. Geo (Limited), residing at 222 Emerald St., Timmins, Ontario, do hereby certify that:

- 1) First Class Metals Canada Inc. currently contracts me as a consulting Geological Technician and Prospector.
- 2) I am a P. Geo (Limited)., registered in the province of Ontario (APGO No. 1025).
- 3) I have continuously practiced my profession as a Geological Technician and Prospector for 40 years. I have prepared reports, conducted, supervised and managed exploration programs for several major and junior mining companies including Noranda Exploration Company Limited, CanAlaska Uranium Ltd., Noront Resources Ltd., Bold Ventures Inc., GoldON Resources Inc. and others.
- 4) I am responsible for the preparation of this report titled 'Work Report of the 2022 Exploration Program on the Coco East Project, Schreiber Area, Ontario for First Class Metals Canada Inc.'
- 5) I have not yet visited the Property.

Dated at Timmins, Ontario, this 21st day of March 2023.

"Bruce A. MacLachlan" P. Geo (Limited) APGO No. 1025
(Signed and Sealed)

Bruce A. MacLachlan
2099840 Ontario Inc.
"Emerald Geological Services"




I, Coleman Robertson, Geoscientist in Training (G.I.T.) with the Association of Professional Geoscientists of Ontario (APGO), residing at 4-217 Laurier Avenue East, Ottawa, Ontario, do hereby certify that:

- 1) I am an employee of Emerald Geological Services which is currently contracted by First Class Metals Canada Inc.
- 2) I am a Geoscientist in Training, registered in the province of Ontario (APGO No. 10821).
- 3) I graduated with a Bachelor of Science (Honours) degree in Earth Sciences at McGill University in 2014.
- 4) I have continuously practiced my profession as a Geological Technician since May 2017. Under the supervision of professional geoscientists (APGO), I have worked on numerous (frequently grassroots) mining exploration projects, performing such activities as prospecting, soil sampling, outcrop mapping, trench mapping, channel sampling, and drill core logging. I have been involved in all stages of these projects, from initial planning and claim staking to property reconnaissance, remote camp logistics, fieldwork, drafting of maps and assessment reports, and property presentations for company management and investors. Junior mining exploration companies whose projects I have worked on include Portofino Resources Inc., GoldOn Resources Ltd., Hemlo Explorers Inc., Frontline Gold Corporation, and Bold Ventures Inc.
- 5) I am co- author of the report titled ‘Work Report of the 2022 Exploration Program on the Coco East Project, Schreiber Area, Ontario, For First Class Metals Canada Inc.’
- 6) I have not yet visited the Property.

Dated at Ottawa, Ontario, this 21st day of March 2023.

“Coleman Robertson,” G.I.T., APGO No. 10821.

(Signed and Sealed)



Coleman Robertson
2099840 Ontario Inc.
“Emerald Geological Services”

8.0 - REFERENCES-

Barnes, B., 1988. Report on the Horizontal Loop Electromagnetic and Magnetic Survey of Golden Range Resources Ltd., Zenmac Property, Golden Range Resources Inc., Thunder Bay South District, Upper Aguasabon Lake Area, NTS 42E03SE, MENDM file 42E03SE0008.

Carter, M.W., 1988. Geology of Schreiber-Terrace Bay area, District of Thunder Bay; Ontario Geological Survey, Open File Report 5692, 287p., 14 photos, 19 figures, 27 tables, 1 appendix, and 5 maps in back pocket.

Corporation Falconbridge Copper, 1984. Diamond Drill Report 12 Upper Aguasabon Lake, Thunder Bay South District, Upper Aguasabon Lake Area, NTS 42E03SE, MENDM file 42E03SE0013.

Golden Range Resource Inc., 1985. Geochemical Assay Expenditure Report, Thunder Bay South District, Upper Aguasabon Lake Area, NTS 42E03SE, MENDM file 42E03SE0002.

Johnston, M. and Daigle, R., 1998. Report on Magnetic Surveys at the Big Duck Option; Report of Work (March 98 IP Survey) for Battle Mountain Canada Ltd., Thunder Bay South District, Upper Aguasabon Lake Area and Rope Lake Area, NTS 42E03SE and 42E03SW, MENDM file 42E03SE2001.

Kuluoglu, R., 2007. 2006-07 Geology and Diamond Drilling Report on the Big Duck Lake Property, Tri Gold Resources Corporation, Thunder Bay South District, Rope Lake, Lower Aguasabon Lake, Upper Aguasabon Lake, and Pays Plat Lake Areas, NTS 42D14NE, 42D14NW, 42E03SE and 42E03SW, MENDM file 20000002793.

Lucas, S.B. and St-Onge, M.R., 1998. Geology of the Precambrian Superior and Grenville Provinces and Precambrian Fossils in North America, Geological Survey of Canada, Geology of Canada, no. 7, 387p.

Neelands, J.T., 1985. Geological Report on the Zenmac Property for Golden Range Resources Inc. by Mid-Canada Exploration Services Limited, Thunder Bay South District, Upper Aguasabon Lake Area, NTS 42E03SE, MENDM file 42E03SE0003.

Ontario Geological Survey, 1985. Coco-Estelle, MDI42E03SW00023.

Ontario Geological Survey, 1991. Big Birch Occurrence, MDI42E03SW00012.

Pye, E.G., 1963. Map 2023, Big Duck Lake Area, District of Thunder Bay, Lower Aguasabon Lake, Pays Plat Lake, Rope Lake and Upper Aguasabon Lake Areas, NTS 42D14, 42E03, 1:15,840.

Riverin, G., 1983. Report on the Questor Airborne Electromagnetic Survey, Corporation Falconbridge Copper, Big Duck Lake Area, Northwestern Ontario, NTS 42-D and 42-E, Thunder Bay South District, MENDM file 42E03SE0014.

Severin, P.W.A., 1983. Report on the Questor Airborne Magnetometer Survey, Corporation Falconbridge Copper, Big Duck Lake Area, Schreiber Area, Northwestern Ontario, NTS 42 D and E, Thunder Bay South District, MENDM file 42D14NE0079.

Sharpe Geophysical Surveys Ltd., 1954. Report on Electromagnetic Survey of a Property of the United Montauban Mines Ltd., Thunder Bay South District, Lower Aguasabon Lake Area, NTS 42D14NE, MENDM file 42D14NE0094.

Stares, S., 2003. Prospecting Report Big Duck Lake Area, Stephen Stares, Thunder Bay South District, Upper Aguasabon Lake, Lower Aguasabon Lake, Pays Plat Lake, and Rope Lake Areas, NTS 42D14NE, 42D14NW, 42E03SE, 42E03SW, MENDM file 42E03SE2003.

Wells, G.S., 1984¹. Geological Assessment Report, Big Duck Lake, Shy Lake, Southpine Lake Areas, Corporation Falconbridge Copper, Thunder Bay South District, Upper & Lower Aguasabon Lake, Pays Plat Lake, and Rope Lake Areas, NTS 42D14NE, 42D14NW, 42E03SE, and 42E03SW, MENDM file 42E03SE8252.

Wells, G.S., 1984². Lithochemical Assessment Report, Big Duck Lake Projects, Corporation Falconbridge Copper, Thunder Bay South District, Pays Plat Lake Area, NTS 42D14NW, MENDM file 42D14NW0014.

APPENDIX I

Rock Sample Descriptions

Table 1	Coco 2022 Grab Sample Description Table												
Sample number	Sample type	Date	Sampler	Claim-Cell	Easting	Northing	Elevation	Rock Code	Rock Type	Source	Description	Certificate_No	Au_ppb_final
705101	Grab	16-06-2022	B.L.	609724	483662	5428961	455	AMP	Amphibolite	Outcrop	Amphibolite/Rusty/1%Pyrite	A22-10015	12
705102	Grab	16-06-2022	B.L.	609724	483601	5428965	455	POR	Quartz Eye Porphyry	Outcrop	Quartz Eye Porphyry/Rusty/.5%Pyrite	A22-10015	7
705103	Grab	17-06-2022	B.L.	609741	483273	5428785	464	QTZ	Quartz	Outcrop	Quartz Vein/Rusty/.2%Pyrite	A22-10015	2.5
705104	Grab	17-06-2022	B.L.	609741	483240	5428814	454	MV	Mafic	Outcrop	Mafic/Rusty/.2%Pyrite	A22-10015	8
705105	Grab	17-06-2022	B.L.	609741	483218	5428840	455	QTZ	Quartz/Mafic	Outcrop	Quartz/Mafic/Rusty/.2%Pyrite	A22-10015	2.5
705106	Grab	17-06-2022	B.L.	609723	483494	5428979	444	QTZ	Quartz	Outcrop	Quartz Vein/Rusty	A22-10015	2.5
705107	Grab	17-06-2022	B.L.	609724	483564	5428917	455	QTZ	Quartz/Mafic	Outcrop	Quartz/Mafic/Rusty/.2%Pyrite	A22-10015	2.5
705108	Grab	18-06-2022	B.L.	609727	482598	5428859	452	GAB	Gabbro	Outcrop	Gabbro/Rusty/2%Pyrite	A22-10015	6
705109	Grab	18-06-2022	B.L.	609728	482559	5429026	460	MV	Mafic	Outcrop	Mafic/Quartz/Rusty/1%Pyrite	A22-10015	9
705110	Grab	18-06-2022	B.L.	609728	482547	5429043	449	MV	Mafic	Outcrop	Mafic/Rusty/1%Pyrite	A22-10015	39
705112	Grab	21-06-2022	B.L.	609721	482275	5428049	466	MV	Mafic	Float	Mafic/Quartz/Rusty/Fuchsite/.5%Pyrite/Float	A22-10015	2.5
705113	Grab	21-06-2022	B.L.	609721	482270	5428007	468	MV	Mafic	Outcrop	Mafic Shear/ Rusty/ .2%Pyrite	A22-10015	2.5
705114	Grab	21-06-2022	B.L.	609721	482258	5427995	473	MV	Mafic	Outcrop	Mafic/Quartz/Rusty/.5%Pyrite	A22-10015	36
705115	Grab	21-06-2022	B.L.	609715	482322	5427842	483	QTZ	Quartz	Outcrop	Quartz Vein/ Rusty/ 2%Pyrite	A22-10015	2.5
705116	Grab	21-06-2022	B.L.	609739	482036	5427933	455	QTZ	Quartz	Float	Quartz/ Rusty/ 3%Pyrite/Float	A22-10015	17
705117	Grab	22-06-2022	B.L.	609719	481568	5427863	433	MV	Mafic	Outcrop	Mafic/Quartz/Rusty/2%Pyrite	A22-10015	2.5
705118	Grab	22-06-2022	B.L.	609719	481538	5427812	430	MV	Mafic	Outcrop	Mafic/Rusty/Epidote/2%Pyrite	A22-10015	57
705119	Grab	22-06-2022	B.L.	609719	481469	5427725	439	MV	Mafic	Outcrop	Mafic/Quartz/Rusty/5%Pyrite	A22-10015	84
705120	Grab	22-06-2022	B.L.	609719	481469	5427725	439	QTZ	Quartz	Outcrop	Quartz Vein/Mafic stringers/ Rusty/2%Pyrite	A22-10015	20
705121	Grab	22-06-2022	B.L.	609719	481469	5427724	439	QTZ	Quartz	Outcrop	Quartz Vein/ Mafic/ Rusty/ 2%Pyrite	A22-10015	15
705122	Grab	22-06-2022	B.L.	609719	481469	5427723	439	QTZ	Quartz	Outcrop	Quartz Vein/ Rusty/2%Pyrite	A22-10015	36
705123	Grab	22-06-2022	B.L.	609739	481758	5427848	435	MV	Mafic	Outcrop	Mafic/ Quartz/ Rusty/ 20%Pyrite	A22-10015	2.5
705124	Grab	22-06-2022	B.L.	609739	481756	5427908	434	MV	Mafic	Outcrop	Mafic/ Quartz/ Rusty/ 5%Pyrite	A22-10015	89
705125	Grab	22-06-2022	B.L.	609739	481758	5427912	434	QTZ	Quartz	Outcrop	Quartz Vein/ Mafic/ Rusty/ 1%Pyrite	A22-10015	32
705126	Grab	22-06-2022	B.L.	609739	481759	5427913	434	MV	Mafic	Outcrop	Mafic/Rusty/5%Pyrite	A22-10015	58
705151	Grab	16-06-2022	DK	609724	483650	5428977	462	UNK	UNK	UNK	UNK	A22-10015	20
705152	Grab	16-06-2022	DK	609724	483599	5428971	452	POR	Porphyry	Outcrop	QE porphyry 1% Py	A22-10015	15
705153	Grab	17-06-2022	DK	609737	483879	5428794	447	UNK	UNK	Float	Float dark blue micas	A22-10015	2.5
705154	Grab	17-06-2022	DK	609741	483269	5428792	460	QTZ	Quartz Vein	Outcrop	2 inch white qtz vein in mafic vol.	A22-10015	2.5
705155	Grab	17-06-2022	DK	609723	483335	5428903	441	MV	Mafic Vol	Outcrop	specks of Cu in mafic shear	A22-10015	2.5
705156	Grab	17-06-2022	DK	609724	483570	5428910	459	QTZ	Quartz Vein	Float	Local float 10" white qtz vein	A22-10015	2.5
705157	Grab	18-06-2022	DK	609716	482686	5428856	463	MV	Mafic Vol	Outcrop	<1% Py within mafic Vol.	A22-10015	2.5
705158	Grab	18-06-2022	DK	609717	482661	5428927	460	MV	Mafic Vol	Outcrop	<1% Py within mafic Vol.	A22-10015	2.5
705159	Grab	18-06-2022	DK	609728	482618	5428985	461	MV	Mafic Vol	Outcrop	<1%Py with epidote in mafic volc.	A22-10015	46
705160	Grab	18-06-2022	DK	609728	482559	5429026	460	MV	Mafic Vol	Outcrop	<1% Py within mafic Vol. and 1 cm qtz vein along foliation	A22-10015	2.5
705162	Grab	21-06-2022	DK	609721	482268	5428011	490	MV	Mafic Vol	Outcrop	Rusty mafic shear with bleached bands	A22-10015	2.5
705163	Grab	21-06-2022	DK	609721	482261	5427996	487	MV	Mafic Vol	Outcrop	f.g pyrite <1% in mafic volcanics	A22-10015	2.5
705164	Grab	21-06-2022	DK	609715	482330	5427861	487	QTZ	Quartz Vein	Outcrop	2 inch white qtz vein in felsic vol.and specks of Py.	A22-10015	2.5
705165	Grab	21-06-2022	DK	609715	482229	5427871	485	MV	Mafic Vol	Outcrop	2% f.g pyrrhotite in mafic volcanics.	A22-10015	2.5
705166	Grab	22-06-2022	DK	609739	481828	5427863	444	MV	Mafic Vol	Outcrop	Carbonatized mafic volcanics with 2 mm qtz stringers and 1% Py.	A22-10015	5
705167	Grab	22-06-2022	DK	609739	481821	5427865	441	MV	Mafic Vol	Outcrop	Carbonatized mafic volcanics with 2 mm qtz stringers and 1% Py.	A22-10015	18

Sample number	Sample type	Date	Sampler	Claim-Cell	Easting	Northing	Elevation	Rock Code	Rock Type	Source	Description	Certificate_No	Au_ppb_final
705168	Grab	22-06-2022	DK	609739	481824	5427867	440	MV	Mafic Vol	Outcrop	Carbonatized mafic volcanics with 10 cm qtz along creek	A22-10015	2.5
705169	Grab	22-06-2022	DK	609719	481560	5427857	443	MV	Mafic Vol	Outcrop	Carbonized mafic volcanics with 2 mm qtz stringers and 1% Py	A22-10015	8
705170	Grab	22-06-2022	DK	609719	481544	5427828	449	MV	Mafic Vol	UNK	Mafic volcanics with epidote and 1% Py.	A22-10015	7
705171	Grab	22-06-2022	DK	609719	481473	5427721	449	MV	Mafic Vol	UNK	Carbonized Mafic Volcanics hosting several qtz veins in zone 3 meters wide with 1% Py. Possibly old blasted pit??	A22-10015	6

APPENDIX II

Rock Assay Certificates



Report No.: A22-10015
Report Date: 22-Sep-22
Date Submitted: 18-Jul-22
Your Reference: COC

Emerald Geological Services
222 Emerald St
Timmins ON P4R 1N3
Canada

ATTN: Bruce MacLachlan

CERTIFICATE OF ANALYSIS

48 Rock samples were submitted for analysis.

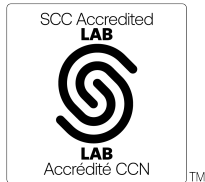
Table with 3 columns: Analytical package(s) requested, Testing Date, and details. Rows include 1A2-50-Tbay, 1F2-Tbay, QOP AA-Au, and QOP Total.

REPORT A22-10015

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained...

Notes:

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3
Values which exceed the upper limit should be assayed for accurate numbers.



LabID: 673

ACTIVATION LABORATORIES LTD.
1201 Walsh Street West, Thunder Bay, Ontario, Canada, P7E 4X6
TELEPHONE +807 622-6707 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Tbay@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

CERTIFIED BY:

Handwritten signature of Mark Vandergeest

Mark Vandergeest
Quality Control Coordinator

Analyte Symbol	Au	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	K	Mg	Li	Mn	Mo	Na	Ni	P	Pb
Unit Symbol	ppb	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	%	%	ppm	ppm	ppm	%	ppm	%	ppm
Lower Limit	5	0.3	0.01	3	7	1	2	0.01	0.3	1	1	1	0.01	1	0.01	0.01	1	1	1	0.01	1	0.001	3
Method Code	FA-AA	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP
705101	12	< 0.3	6.79	< 3	103	< 1	< 2	7.02	< 0.3	40	71	135	10.7	18	0.34	4.22	27	1830	< 1	1.12	60	0.041	< 3
705102	7	0.3	7.25	< 3	681	1	< 2	0.90	< 0.3	5	35	6	1.73	17	1.97	0.65	24	240	< 1	3.08	19	0.028	< 3
705103	< 5	< 0.3	0.64	< 3	8	< 1	< 2	0.43	< 0.3	6	54	68	1.96	2	0.03	0.29	9	292	4	0.10	9	0.007	< 3
705104	8	< 0.3	7.32	< 3	98	< 1	< 2	5.41	< 0.3	50	64	148	11.8	17	0.31	3.43	44	1850	< 1	1.72	76	0.032	< 3
705105	< 5	< 0.3	4.04	< 3	38	< 1	< 2	3.49	< 0.3	34	58	170	8.76	12	0.20	3.46	45	1230	< 1	0.64	43	0.021	< 3
705106	< 5	< 0.3	0.33	< 3	< 7	< 1	< 2	0.17	< 0.3	3	47	39	1.42	< 1	0.02	0.26	14	199	3	0.03	6	0.001	< 3
705107	< 5	< 0.3	1.63	< 3	26	< 1	< 2	0.94	< 0.3	13	63	119	2.86	3	0.09	0.65	16	366	2	0.56	13	0.025	< 3
705108	6	0.4	7.05	< 3	41	< 1	< 2	6.03	< 0.3	38	51	156	12.7	18	0.39	4.26	145	1860	< 1	1.28	56	0.055	< 3
705109	9	0.4	3.18	< 3	45	< 1	< 2	2.67	< 0.3	26	59	90	7.29	13	0.22	2.16	28	769	1	0.63	24	0.091	< 3
705110	39	0.4	7.42	< 3	707	< 1	< 2	4.74	< 0.3	38	87	163	7.28	20	1.50	1.77	19	1350	< 1	1.93	69	0.083	4
705111	342	0.3	7.34	121	343	1	< 2	5.60	< 0.3	37	205	115	8.25	19	0.85	3.93	9	1450	< 1	2.23	132	0.127	< 3
705112	< 5	< 0.3	5.10	< 3	355	< 1	< 2	5.76	< 0.3	3	33	1	3.42	10	1.80	1.99	21	1040	1	1.04	14	0.074	< 3
705113	< 5	0.6	6.46	< 3	29	< 1	< 2	3.91	0.5	22	18	75	10.6	20	0.18	1.68	3	1620	< 1	2.41	7	0.090	< 3
705114	< 5	0.4	2.11	< 3	86	< 1	< 2	1.87	< 0.3	29	43	83	5.38	9	0.19	0.63	4	819	2	0.41	4	0.060	< 3
705115	36	< 0.3	0.08	< 3	7	< 1	< 2	0.04	< 0.3	4	72	37	1.08	< 1	< 0.01	< 0.01	< 1	121	4	0.04	3	0.004	< 3
705116	17	0.5	0.49	5	22	< 1	< 2	0.20	< 0.3	3	64	65	2.06	2	0.05	0.21	4	232	15	0.16	3	0.005	< 3
705117	< 5	< 0.3	5.72	< 3	27	< 1	< 2	10.3	< 0.3	15	98	37	5.00	17	0.17	1.51	7	876	< 1	0.71	29	0.017	< 3
705118	57	1.5	7.26	< 3	294	2	< 2	3.07	< 0.3	54	88	171	8.91	19	1.18	3.27	30	809	4	2.13	35	0.059	5
705119	84	1.4	3.25	4	186	< 1	5	0.47	< 0.3	14	67	139	11.0	15	1.15	2.52	19	496	69	0.11	19	0.049	< 3
705120	20	0.4	0.96	< 3	19	< 1	< 2	1.24	< 0.3	12	47	66	3.51	4	0.09	1.05	12	334	26	0.05	10	0.017	< 3
705121	15	0.4	1.08	< 3	53	< 1	< 2	0.48	< 0.3	10	50	71	2.91	4	0.26	0.89	9	291	8	0.14	11	0.012	< 3
705122	36	< 0.3	0.52	< 3	18	< 1	< 2	0.70	< 0.3	17	82	229	2.40	2	0.13	0.47	3	242	9	0.04	12	0.008	< 3
705123	< 5	2.4	5.13	7	34	< 1	6	0.45	< 0.3	74	49	456	18.0	16	0.87	4.33	46	912	197	0.23	51	0.038	< 3
705124	89	3.6	1.46	< 3	48	< 1	25	0.69	< 0.3	64	46	1870	7.83	6	0.21	0.72	7	285	476	0.26	16	0.009	< 3
705125	32	0.4	1.39	< 3	79	< 1	< 2	1.69	< 0.3	14	59	99	3.66	4	0.38	0.75	8	295	155	0.10	15	0.009	< 3
705126	58	0.8	7.25	4	87	< 1	4	3.73	< 0.3	40	66	38	11.7	26	2.20	3.61	36	770	1	0.40	79	0.098	3
705151	20	0.8	7.94	4	> 1000	3	< 2	1.69	< 0.3	58	87	243	6.01	27	2.84	1.26	21	705	6	2.32	88	0.046	29
705152	15	0.4	7.64	4	804	1	< 2	1.74	< 0.3	3	36	4	2.34	17	2.91	0.55	23	257	2	1.93	13	0.026	< 3
705153	< 5	< 0.3	7.31	< 3	265	< 1	< 2	6.26	< 0.3	20	65	79	9.58	20	0.30	2.45	8	1440	< 1	2.18	22	0.038	< 3
705154	< 5	< 0.3	1.79	< 3	32	< 1	< 2	1.70	< 0.3	7	50	39	2.60	3	0.25	0.60	11	439	2	0.31	10	0.190	< 3
705155	< 5	< 0.3	8.63	< 3	227	< 1	< 2	5.60	< 0.3	47	84	189	12.0	23	1.70	3.31	30	1860	< 1	1.55	68	0.044	< 3
705156	< 5	< 0.3	2.08	5	59	< 1	< 2	3.15	< 0.3	14	73	37	3.93	6	0.17	1.00	9	690	3	0.30	24	0.019	< 3
705157	< 5	0.6	7.98	< 3	121	< 1	< 2	5.70	0.7	46	79	178	11.2	19	1.15	3.54	84	1800	< 1	2.17	71	0.039	8
705158	< 5	0.9	6.31	4	42	3	3	4.59	< 0.3	32	79	168	10.8	20	0.25	2.95	117	1560	< 1	2.22	66	0.270	< 3
705159	46	0.4	6.26	< 3	105	< 1	3	5.67	< 0.3	21	105	29	8.17	20	0.65	1.70	54	1090	< 1	2.02	50	0.132	< 3
705160	< 5	< 0.3	7.39	< 3	121	< 1	< 2	3.90	< 0.3	32	110	45	9.43	19	0.38	4.02	42	1390	< 1	2.38	69	0.206	< 3
705161	329	0.3	7.42	115	343	1	< 2	5.64	< 0.3	37	176	116	8.39	20	0.86	3.98	10	1480	< 1	2.16	128	0.128	< 3
705162	< 5	0.4	7.06	< 3	47	< 1	< 2	4.23	0.3	16	10	53	12.5	25	0.26	2.49	6	1900	< 1	2.25	6	0.107	< 3
705163	< 5	0.5	6.21	< 3	150	< 1	< 2	3.99	< 0.3	28	14	180	11.8	22	0.36	1.71	6	1430	< 1	2.23	8	0.088	< 3
705164	< 5	< 0.3	7.83	< 3	879	1	< 2	1.44	< 0.3	3	19	5	1.50	18	2.41	0.46	15	337	1	3.07	7	0.034	< 3
705165	< 5	0.6	7.19	< 3	41	< 1	< 2	4.49	< 0.3	38	62	135	11.8	20	0.19	2.90	6	2060	< 1	2.52	27	0.058	< 3
705166	5	< 0.3	5.96	< 3	57	< 1	< 2	0.68	< 0.3	33	84	272	8.23	23	1.07	2.66	41	717	< 1	0.69	29	0.067	< 3
705167	18	0.8	6.28	7	29	< 1	5	2.06	< 0.3	70	101	33	12.2	20	0.38	3.12	36	725	1	1.88	59	0.091	< 3
705168	< 5	< 0.3	4.81	< 3	21	< 1	< 2	0.41	< 0.3	7	77	9	1.83	6	0.17	0.16	6	208	3	2.76	16	0.038	< 3
705169	8	< 0.3	5.92	5	268	< 1	< 2	2.18	< 0.3	52	20	241	12.0	22	1.42	3.04	44	1150	< 1	0.98	13	0.070	< 3
705170	7	0.3	6.52	< 3	123	1	< 2	3.40	< 0.3	42	38	339	10.9	21	0.91	3.29	33	965	3	1.83	28	0.063	< 3
705171	6	0.3	4.23	< 3	164	< 1	< 2	1.75	< 0.3	25	69	246	6.59	12	0.81	2.26	20	781	29	1.01	22	0.034	< 3
705172	72	0.8	7.70	< 3	362	1	< 2	3.83	< 0.3	35	84	204	8.72	19	1.72	5.28	44	1120	10	1.96	46	0.040	< 3

Analyte Symbol	Sb	S	Sc	Sr	Te	Ti	Tl	U	V	W	Y	Zn	Zr
Unit Symbol	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.01	4	1	2	0.01	5	10	2	5	1	1	5
Method Code	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP
705101	< 5	0.11	37	132	9	0.47	< 5	< 10	253	< 5	27	111	29
705102	< 5	0.11	< 4	129	< 2	0.11	< 5	< 10	23	< 5	3	25	72
705103	< 5	0.03	< 4	8	< 2	0.05	< 5	< 10	19	< 5	2	18	< 5
705104	< 5	0.35	43	149	9	0.58	< 5	< 10	249	< 5	26	105	34
705105	< 5	0.22	21	23	7	0.33	< 5	< 10	168	< 5	14	84	23
705106	< 5	< 0.01	< 4	2	< 2	< 0.01	< 5	< 10	19	< 5	< 1	12	< 5
705107	< 5	0.27	5	37	< 2	0.18	< 5	< 10	25	< 5	4	21	18
705108	< 5	0.30	37	90	8	0.67	< 5	< 10	237	< 5	23	111	41
705109	< 5	0.88	11	48	6	0.37	< 5	< 10	123	< 5	12	39	56
705110	< 5	0.77	24	817	12	0.45	< 5	< 10	106	< 5	16	53	40
705111	< 5	0.25	19	391	4	0.34	< 5	< 10	86	< 5	21	102	69
705112	< 5	0.07	6	249	< 2	0.18	< 5	< 10	50	< 5	11	58	70
705113	< 5	0.74	35	148	8	0.38	< 5	< 10	79	< 5	58	431	87
705114	< 5	0.26	9	50	7	0.31	< 5	< 10	48	< 5	17	75	44
705115	< 5	0.08	< 4	3	< 2	< 0.01	< 5	< 10	2	< 5	< 1	6	< 5
705116	< 5	0.32	< 4	9	2	0.08	< 5	< 10	39	< 5	2	14	14
705117	< 5	0.10	16	189	< 2	0.21	< 5	< 10	204	< 5	11	25	13
705118	< 5	1.82	41	157	2	0.49	< 5	< 10	162	< 5	35	66	41
705119	< 5	1.53	21	17	16	0.23	< 5	< 10	167	< 5	7	62	25
705120	< 5	0.78	6	13	< 2	0.04	< 5	< 10	58	< 5	5	26	< 5
705121	< 5	0.74	5	13	2	0.05	< 5	< 10	56	< 5	3	27	7
705122	< 5	0.64	< 4	8	3	0.08	< 5	< 10	26	< 5	5	14	12
705123	< 5	12.0	34	34	16	0.58	< 5	< 10	184	19	6	96	86
705124	< 5	5.25	7	101	15	0.13	< 5	< 10	62	8	4	19	20
705125	< 5	1.55	7	76	< 2	0.13	< 5	< 10	59	124	5	15	15
705126	< 5	5.11	28	357	17	0.90	< 5	< 10	161	< 5	16	73	22
705151	< 5	0.54	42	220	5	0.39	< 5	< 10	181	11	21	95	43
705152	< 5	0.59	< 4	139	< 2	0.10	< 5	< 10	19	17	3	22	70
705153	< 5	0.25	45	142	5	0.21	< 5	< 10	157	< 5	27	78	23
705154	< 5	0.07	6	34	4	0.20	< 5	< 10	25	< 5	6	21	< 5
705155	< 5	0.21	50	145	7	0.67	< 5	< 10	331	< 5	31	119	35
705156	5	0.05	13	29	2	0.20	< 5	< 10	92	< 5	10	37	10
705157	< 5	0.28	45	184	4	0.43	< 5	< 10	223	< 5	27	157	39
705158	< 5	0.34	23	208	15	1.27	< 5	< 10	185	11	32	131	202
705159	< 5	0.98	22	717	8	0.76	< 5	< 10	167	< 5	23	46	80
705160	< 5	0.20	30	159	11	0.35	< 5	< 10	102	< 5	32	62	50
705161	< 5	0.26	19	394	5	0.33	< 5	< 10	85	< 5	21	104	71
705162	< 5	0.33	41	184	6	0.19	< 5	< 10	92	< 5	66	142	48
705163	< 5	0.92	34	114	7	0.43	< 5	< 10	97	< 5	58	106	76
705164	< 5	0.16	< 4	469	7	0.12	< 5	< 10	18	< 5	7	57	68
705165	< 5	0.29	40	95	8	0.44	< 5	< 10	213	< 5	49	153	78
705166	< 5	0.64	25	37	9	0.48	< 5	< 10	181	< 5	25	71	51
705167	< 5	5.52	30	68	12	0.69	< 5	< 10	152	11	32	64	100
705168	< 5	0.25	< 4	149	< 2	0.12	< 5	< 10	34	< 5	5	11	56
705169	< 5	0.38	36	187	3	0.27	< 5	< 10	134	< 5	51	103	30
705170	< 5	0.62	38	158	4	0.29	< 5	< 10	167	< 5	39	70	33
705171	< 5	0.29	23	73	3	0.43	< 5	< 10	177	< 5	18	71	41
705172	< 5	0.32	30	129	8	0.20	< 5	< 10	110	< 5	24	85	26

Analyte Symbol	Au	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	K	Mg	Li	Mn	Mo	Na	Ni	P	Pb
Unit Symbol	ppb	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	%	%	ppm	ppm	ppm	%	ppm	%	ppm
Lower Limit	5	0.3	0.01	3	7	1	2	0.01	0.3	1	1	1	0.01	1	0.01	0.01	1	1	1	0.01	1	0.001	3
Method Code	FA-AA	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP
Oreas 72a (4 Acid) Meas				9						142	203	330	9.60								6300		
Oreas 72a (4 Acid) Cert				14.7						157	228	316	9.63								6930.000		
OREAS 98 (4 Acid) Meas		42.0					67			121		> 10000											294
OREAS 98 (4 Acid) Cert		45.1					97.2			121		14800.00											345
OREAS 98 (4 Acid) Meas		42.0					63			120		> 10000											288
OREAS 98 (4 Acid) Cert		45.1					97.2			121		14800.00											345
OREAS 904 (4 Acid) Meas		0.5	6.56	106	177	10	6	0.05		95	67	6430	7.01	17	2.00	0.63	17	472	2	0.04	44	0.103	7
OREAS 904 (4 Acid) Cert		0.551	6.30	98.0	194	7.86	4.05	0.0460		83.0	54.0	6120	6.68	16.7	3.31	0.556	16.7	410	2.12	0.0340	40.1	0.0980	10.6
SBC-1 Meas				22	761	3	< 2		0.3	21	101	30		26				173		2		86	27
SBC-1 Cert				25.7	788.0	3.20	0.70		0.40	22.7	109	31.0		27.0				163		2		83	35.0
OREAS 96 (4 Acid) Meas		11.2					10			49		> 10000											86
OREAS 96 (4 Acid) Cert		11.5					26.3			49.9		39300											101
OREAS 96 (4 Acid) Meas		11.5					10			50		> 10000											89
OREAS 96 (4 Acid) Cert		11.5					26.3			49.9		39300											101
OREAS 923 (4 Acid) Meas		1.9	7.55	9	458	3	16	0.51	0.4	23	85	4820	6.67	20	2.41	1.84	32	1020	< 1	0.32	38	0.067	81
OREAS 923 (4 Acid) Cert		1.60	7.29	7.61	434	2.42	21.4	0.473	0.420	23.1	71.0	4230	6.43	20.3	2.51	1.69	31.4	950	0.930	0.324	35.8	0.0630	83.0
OREAS 238 (Fire Assay) Meas	2960																						
OREAS 238 (Fire Assay) Cert	3030																						
OREAS 238 (Fire Assay) Meas	3010																						
OREAS 238 (Fire Assay) Cert	3030																						
Oreas E1336 (Fire Assay) Meas	490																						
Oreas E1336 (Fire Assay) Cert	510.000																						
Oreas E1336 (Fire Assay) Meas	495																						
Oreas E1336 (Fire Assay) Cert	510.000																						
Oreas E1336 (Fire Assay) Meas	497																						
Oreas E1336 (Fire Assay) Cert	510.000																						
OREAS 681 (4 Acid) Meas		0.3	7.73		426	1	< 2	5.73		46	1470	272	7.66	17	1.40	5.22	14	1300	< 1	1.58	460	0.130	6
OREAS 681 (4 Acid) Cert		0.118	7.91		442	1.41	0.0980	5.98		51.0	1640	264	7.47	17.6	1.35	5.19	13.0	1310	1.38	1.61	503	0.141	10.2
OREAS 620 (4 Acid) Meas		41.0	6.87	46	112	3	< 2	1.74	166	13	25	1750	3.04	23	2.73	0.37	20	427	8	1.91	17	0.038	> 5000
OREAS 620 (4 Acid) Cert		38.5	6.72	50	2490	2	2	1.60	163	12	22	1730	2.94	24	2.63	0.34	20	440	9	1.94	15	0.035	7740

Analyte Symbol	Au	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	K	Mg	Li	Mn	Mo	Na	Ni	P	Pb
Unit Symbol	ppb	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	%	%	ppm	ppm	ppm	%	ppm	%	ppm
Lower Limit	5	0.3	0.01	3	7	1	2	0.01	0.3	1	1	1	0.01	1	0.01	0.01	1	1	1	0.01	1	0.001	3
Method Code	FA-AA	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP
OREAS 620 (4 Acid) Meas		40.6	6.49	48	84	3	< 2	1.74	167	13	29	1830	3.03	24	2.47	0.36	20	433	8	1.91	19	0.035	> 5000
OREAS 620 (4 Acid) Cert		38.5	6.72	50	2500	2	2	1.60	163	12	22	1730	2.94	24	2.63	0.34	20	440	9	1.94	15	0.035	7740
OREAS L15 Meas	> 5000																						
OREAS L15 Cert	7180																						
705105 Orig		< 0.3	4.04	< 3	38	< 1	< 2	3.49	< 0.3	34	59	170	8.75	11	0.20	3.46	45	1230	< 1	0.64	43	0.021	< 3
705105 Dup		< 0.3	4.05	< 3	38	< 1	< 2	3.49	< 0.3	34	58	169	8.76	12	0.20	3.46	45	1240	1	0.64	43	0.021	< 3
705109 Orig	9																						
705109 Dup	9																						
705116 Orig	16																						
705116 Dup	17																						
705117 Orig		0.3	5.80	< 3	28	< 1	< 2	10.2	< 0.3	16	106	37	5.08	17	0.17	1.54	7	898	< 1	0.72	29	0.017	< 3
705117 Dup		< 0.3	5.63	< 3	27	< 1	< 2	10.4	< 0.3	15	89	36	4.92	17	0.16	1.49	7	854	< 1	0.70	29	0.017	< 3
705125 Orig	32																						
705125 Dup	32																						
705155 Orig		< 0.3	8.66	< 3	227	< 1	< 2	5.63	< 0.3	47	86	190	11.9	23	1.72	3.34	30	1840	< 1	1.56	69	0.044	< 3
705155 Dup		0.4	8.60	< 3	227	< 1	< 2	5.57	< 0.3	46	83	189	12.1	23	1.68	3.28	30	1870	< 1	1.53	67	0.044	< 3
705162 Orig	< 5																						
705162 Dup	< 5																						
705172 Orig	72	0.8	7.70	< 3	362	1	< 2	3.83	< 0.3	35	84	204	8.72	19	1.72	5.28	44	1120	10	1.96	46	0.040	< 3
705172 Split PREP DUP	70	0.7	7.67	< 3	362	1	< 2	3.80	< 0.3	36	100	201	8.65	20	1.74	5.23	43	1110	12	1.96	45	0.040	< 3
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank		< 0.3	0.01	< 3	< 7	< 1	< 2	< 0.01	< 0.3	< 1	7	< 1	< 0.01	< 1	< 0.01	< 0.01	< 1		< 1	< 0.01	< 1	< 0.001	< 3
Method Blank		< 0.3	< 0.01	< 3	< 7	< 1	< 2	< 0.01	< 0.3	< 1	5	< 1	< 0.01	< 1	< 0.01	< 0.01	< 1		< 1	< 0.01	< 1	< 0.001	< 3
Method Blank		< 0.3	< 0.01	< 3	< 7	< 1	< 2	< 0.01	< 0.3	< 1		< 1	< 0.01	< 1	< 0.01	< 0.01	< 1		< 1	< 0.01	< 1	< 0.001	< 3

Analyte Symbol	Sb	S	Sc	Sr	Te	Ti	Tl	U	V	W	Y	Zn	Zr
Unit Symbol	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.01	4	1	2	0.01	5	10	2	5	1	1	5
Method Code	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP
Oreas 72a (4 Acid) Meas		1.73											
Oreas 72a (4 Acid) Cert		1.74											
OREAS 98 (4 Acid) Meas	6	16.6										1350	
OREAS 98 (4 Acid) Cert	20.1	15.5										1360	
OREAS 98 (4 Acid) Meas	< 5	16.3										1340	
OREAS 98 (4 Acid) Cert	20.1	15.5										1360	
OREAS 904 (4 Acid) Meas	< 5	0.06	12	31			< 5	< 10	87	< 5	34	29	45
OREAS 904 (4 Acid) Cert	1.48	0.0630	11.2	27.2			0.520	8.43	76.0	2.12	31.5	26.3	171
SBC-1 Meas	< 5		20	188		0.50	< 5	< 10	218	< 5	33	195	123
SBC-1 Cert	1.01		20.0	178.0		0.51	0.89	5.76	220.0	1.60	36.5	186	134.0
OREAS 96 (4 Acid) Meas	< 5	4.35										457	
OREAS 96 (4 Acid) Cert	5.09	4.19										457	
OREAS 96 (4 Acid) Meas	< 5	4.54										469	
OREAS 96 (4 Acid) Cert	5.09	4.19										457	
OREAS 923 (4 Acid) Meas	< 5	0.75	13	48		0.42	< 5	< 10	98	7	27	379	135
OREAS 923 (4 Acid) Cert	1.29	0.691	13.1	43.0		0.405	0.860	3.06	91.0	4.85	26.4	345	116
OREAS 238 (Fire Assay) Meas													
OREAS 238 (Fire Assay) Cert													
OREAS 238 (Fire Assay) Meas													
OREAS 238 (Fire Assay) Cert													
Oreas E1336 (Fire Assay) Meas													
Oreas E1336 (Fire Assay) Cert													
Oreas E1336 (Fire Assay) Meas													
Oreas E1336 (Fire Assay) Cert													
Oreas E1336 (Fire Assay) Meas													
Oreas E1336 (Fire Assay) Cert													
OREAS 681 (4 Acid) Meas	< 5	0.10	27	462		0.51		< 10	227	< 5	16	79	57
OREAS 681 (4 Acid) Cert	0.240	0.109	27.7	478		0.588		1.44	253	1.09	17.5	88.0	58.0
OREAS 620 (4 Acid) Meas	8	2.62	6	121		0.16	< 5	< 10	23	< 5	14	> 10000	221
OREAS 620 (4 Acid) Cert	80	2.47	5	131		0.14	2	4	21	2	12	31500	202

Analyte Symbol	Sb	S	Sc	Sr	Te	Ti	Tl	U	V	W	Y	Zn	Zr
Unit Symbol	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	5	0.01	4	1	2	0.01	5	10	2	5	1	1	5
Method Code	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP	TD-ICP
OREAS 620 (4 Acid) Meas	11	2.59	5	125		0.16	< 5	< 10	23	< 5	12	> 10000	205
OREAS 620 (4 Acid) Cert	76	2.47	5	131		0.14	2	4	21	2	12	31500	202
OREAS L15 Meas													
OREAS L15 Cert													
705105 Orig	< 5	0.22	21	23	10	0.33	< 5	< 10	168	< 5	14	84	23
705105 Dup	< 5	0.22	21	24	5	0.33	< 5	< 10	169	< 5	14	84	23
705109 Orig													
705109 Dup													
705116 Orig													
705116 Dup													
705117 Orig	< 5	0.10	16	193	< 2	0.21	< 5	< 10	204	< 5	12	25	10
705117 Dup	< 5	0.10	16	185	< 2	0.21	< 5	< 10	203	< 5	11	24	16
705125 Orig													
705125 Dup													
705155 Orig	< 5	0.22	51	146	6	0.67	< 5	< 10	329	< 5	31	119	34
705155 Dup	< 5	0.21	50	143	9	0.68	< 5	< 10	333	< 5	31	119	35
705162 Orig													
705162 Dup													
705172 Orig	< 5	0.32	30	129	8	0.20	< 5	< 10	110	< 5	24	85	26
705172 Split PREP DUP	< 5	0.32	30	127	15	0.25	< 5	< 10	126	< 5	24	86	36
Method Blank													
Method Blank													
Method Blank													
Method Blank													
Method Blank	< 5	< 0.01	< 4	< 1	< 2	< 0.01	< 5	< 10	< 2	< 5	< 1	< 1	< 5
Method Blank	< 5	< 0.01	< 4	< 1	< 2	< 0.01	< 5	< 10	< 2	< 5	< 1	3	< 5
Method Blank	< 5	< 0.01	< 4	< 1	< 2	< 0.01	< 5	< 10	< 2	< 5	< 1	< 1	< 5

APPENDIX III

Lab Analytical Descriptions

Sample Preparation

To obtain meaningful analytical results, it is imperative that sample collection and preparation be done properly. Actlabs can advise on sampling protocol for your field program if requested. Once the samples arrive in the laboratory, Actlabs will ensure that they are prepared properly. As a routine practice with rock and core, the entire sample is crushed to a nominal -2 mm, mechanically split to obtain a representative sample and then pulverized to at least 95% -105 microns (μm). All of our steel mills are mild steel and do not introduce Cr or Ni contamination. Quality of crushing and pulverization is routinely checked as part of our quality assurance program. Samples submitted in an unorganized fashion will be subject to a sorting surcharge and may substantially slow turnaround time. Providing an accurate detailed sample list by e-mail will also aid in improving turnaround time and for Quality Control purposes.

Rock, Core and Drill Cuttings		
Code	Description	Price
RX1	Crush (< 7 kg) up to 80% passing 2 mm, riffle split (250 g) and pulverize (mild steel) to 95% passing 105 μm included cleaner sand	\$12.30
RX1-ORE	Crush up to 90% passing 2 mm	add \$2.20
RX1+500	500 grams pulverized	add \$1.30
RX1+800	800 grams pulverized	add \$2.35
RX1+1000	1000 grams pulverized	add \$2.90
RX1-SD	Crush (< 7 kg) up to 80% passing 2 mm, rotary split (250 g) and pulverized (mild steel) to 95% passing 105 μm	\$12.00
RX1-SD-ORE	Crush up to 90% passing 2 mm	add \$2.25
RX3	Oversize charge per kilogram for crushing	\$1.30
RX4	Pulverization only (mild steel) (coarse pulp or crushed rock) (< 800 g)	\$7.75
RX5	Pulverize ceramic (100 g)	\$21.00
RX6	Hand pulverize small samples (agate mortar & pestle) (<5g)	\$21.00
RX7	Crush and split (< 5 kg)	\$5.00
RX8	Sample prep only surcharge, no analyses	\$5.70
RX9	Compositing (per composite) dry weight	\$4.65
RX10	Weight (kg) as received	\$2.25
RX11	Checking quality of pulps or rejects prepared by other labs and issuing report	\$11.00
RX14	Core cutting	On Request
RX15	Special Preparation/Hour	\$80.00
RX16	Specific Gravity on Core	\$15.40
RX16-W	Specific Gravity (WAX) on friable samples	\$22.00
RX17	Specific Gravity on the pulp	\$17.85
RX17-GP	Specific Gravity on the pulp by gas pycnometer	\$18.90
RX18	Subsample split for 3rd party (up to 1kg)	\$3.45

Note: Larger sample sizes than listed above can be pulverized at additional cost.

Our Sample Preparation pricing is all-inclusive including: sorting, drying, labeling, new reject bags, using cleaner sand between each sample and crushing samples up to 7 kg (for RX1 and RX1-SD).



Soils, Stream and Lake Bottom Sediments, and Heavy Minerals		
Code	Description	Price
S1	Drying (60°C) and sieving (-177 μm) save all portions	\$4.75
S1 DIS	Drying (60°C) and sieving (-177 μm), discard oversize	\$4.50
S1-230	Drying (60°C) and sieving (-63 μm), save oversize	\$6.00
S1-230 DIS	Drying (60°C) and sieving (-63 μm), discard oversize	\$5.50
S2	Lake bottom sediment preparation crush & sieve (-177 μm)	\$9.25
S3	Alternate size fractions and bracket sieving, add	\$3.00
S4	Selective Extractions drying (40°C) & sieving (-177 μm)	\$4.50
SGH-1	SGH drying (40°C) & sieving (-177 μm)	\$4.50
S5	Wet or damp samples submitted in plastic bags, add	\$2.25
S8	Sieve analysis (4 sieve sizes) coarser than 53 μm	\$85.00
S9	Particle size analysis (laser)	On Request

All soil, sediment and vegetation samples received from outside Canada require incineration prior to disposal under Canadian Food Inspection Agency (CFIA) regulations so incineration charges will apply as listed in the table below



Sample Preparation Packages

Humus and Vegetation		
Code	Description	Price
B1	Drying and blending humus	\$6.05
B2	Drying and macerating vegetation	\$8.00
B3	Dry ashing	\$11.00
B4	Washing vegetation	\$5.50
B5	Samples submitted in plastic bags, add	\$2.45
Special Digestion Procedures		
MDI	Microwave digestion - closed vessel	On Request



Sample Return, Disposal, and Storage

Please indicate on your Request for Analysis Form if your samples should be returned, disposed, or stored after analysis. Material is stored free of charge for a limited time after the date the final report is issued. If no instructions are received for sample return or storage, Actlabs reserves the right to dispose of the material after 3 months and disposal charges will apply. Material stored long-term will be subject to storage charges, billed quarterly. For returns, please include all necessary shipping information e.g., courier, account number, etc.

Irradiated material will be discarded 30 days after analysis unless prior arrangements are made. Return of radioactive material requires a Nuclear Safety Commission license. The cost per shipment of radioactive materials is \$200.00 plus shipping costs.

Code	Description	Price
RTRN	Return of all reject portions and/or pulps	At cost +15%
INCIN	Incineration of soil, sediment and vegetation samples from outside Canada (for samples up to 0.5 kg; samples over 0.5 kg will add \$0.35/kg)	\$0.80
H&R	Handling and retrieval of stored sample material	\$ 65.00/hour
DISP1	Disposal of pulps to landfill site	\$0.30
DISP2	Disposal of reject to landfill site	\$0.95
STORE 1	Monthly storage of reject after 60 days	\$0.50
STORE 2	Monthly storage of pulps after 90 days	\$0.25
STORE 3	Monthly storage of sieve rejects after 3 months	\$0.25

Precious Metals Analysis

Gold and Silver Analyses - Geochem

Code	Method	Sample Weight (g)	Metric Range (ppb)	Price
1A1	Au Fire Assay - INAA	30	1 - 20,000	\$22.00
1A2	Au Fire Assay - AA	30	5 - 5,000	\$18.90
1A2B-30	Au Fire Assay - AA	30	5 - 10,000	\$20.15
1A2-50	Au Fire Assay - AA	50	5 - 5,000	\$21.70
1A2B-50	Au Fire Assay - AA	50	5 - 10,000	\$23.00
1A2-ICP	Au Fire Assay - ICP-OES	30	2 - 30,000	\$20.45
1A2-ICP-50	Au Fire Assay - ICP-OES	50	2 - 30,000	\$23.00
1A2-ICPMS	Au Fire Assay - ICP-MS	30	0.5 - 30,000	\$28.00
1A6	Au BLEG - ICP-MS	1,000	0.1 - 10,000	\$44.75
1A6-50	Au Cyanide Extraction - ICP-MS Ag or Cu add-on, for each additional, add	50	0.02 - 1,000	\$16.50 \$5.50
1A8-Au	Au Aqua Regia - ICP-MS	30	0.2 - 2,000	\$20.00
1E-Ag	Ag Aqua Regia - ICP-OES	0.5	0.2 - 100 ppm	\$7.50

Use of 50g sample for fire assay may not provide optimum recovery.

For proper fire assay fusion, Actlabs may reduce the sample weights to 15g or smaller at its discretion

Gold and Silver Analyses - Assay

Code	Method	Sample Weight (g)	Metric Range (g/T)	Price
1A3-30	Au Fire Assay - Gravimetric	30	0.03 - 10,000	\$25.00
1A3-50	Au Fire Assay - Gravimetric	50	0.02 - 10,000	\$28.25
1A3-Ag (Au, Ag)	Au, Ag Fire Assay - Gravimetric	30	0.03 - 10,000 (Au) 3 - 10,000 (Ag)	\$30.75
1A4 *	Au Fire Assay - Metallic Screen	500	0.03 - 10,000	\$80.00
1A4-1000 *	Au Fire Assay - Metallic Screen	1,000	0.03 - 10,000	\$91.00
8-Ag	Au Fire Assay - Gravimetric	30	3 - 10,000	\$27.50

* A representative 500 gram or 1000 gram (or customized) sample split is sieved at 149µm, with assays performed on the entire +149 µm fraction and two splits of the -149 µm fraction. It is important not to over pulverize the sample too finely; as tests have shown gold will plate out on the mill and be lost. When assays have been completed on the coarse and fine portions of the bulk sample, a final assay is calculated based on the weight of each fraction.

When submitting samples for precious metals analysis, please provide at least 2-3 times the listed sample weight to allow for quality control analysis



Gold, Platinum, Palladium and Rhodium

Code	Method	Sample Weight (g)	Range (ppb)				Price
			Au	Pt	Pd	Rh	
1C-Exploration	Fire Assay - ICP-MS	30	2 - 30,000	1 - 30,000	1 - 30,000	-	\$26.00
1C-Research	Fire Assay - ICP-MS	30	1 - 30,000	0.1 - 30,000	0.1 - 30,000	-	\$36.25
1C-Rhodium	Fire Assay - ICP-MS	30	-	-	-	5 - 10,000	\$35.00
1C-OES	Fire Assay - ICP-OES	30	2 - 30,000	5 - 30,000	5 - 30,000	-	\$23.00
1C-OES-ORE *	Fire Assay - ICP-OES	30	0.006 - 1000 g/T	0.001 - 1000 g/T	0.001 - 1000 g/T	-	\$45.00

* If above 1000g/T, see Concentrate Testing

Platinum Group Elements

Code	Method	Sample Weight (g)	Range (ppb)							Price
			Os	Ir	Ru	Rh	Pt	Pd	Au	
1B1	NiS Fire Assay - INAA	30	2-20,000	0.1-10,000	5-50,000	0.2-20,000	5*-100,000	2-100,000	0.5-20,000	1-2 samples \$381.15 3+ samples \$191.10
1B2	NiS Fire Assay - ICP-MS	30	-	1-10,000	1-10,000	1-10,000	1-10,000	1-10,000	1-10,000	1-2 samples \$381.15 3+ samples \$191.10

* Detection limits for Pt are increased with high Au/Pt ratios and limits for other elements will be affected by abnormally high Au, Sb and Cu content. Samples with high Au can be reanalyzed by Code 1C exploration or research. Zn concentrates are not amenable to the nickel sulphide fire assay. Au results by Code 1B1 or 1B2 can be low by nickel sulphide fire assay. For accurate Au values, please request Code 1C-exploration.

Exploration Geochemistry

Aqua Regia "Partial" Digestion

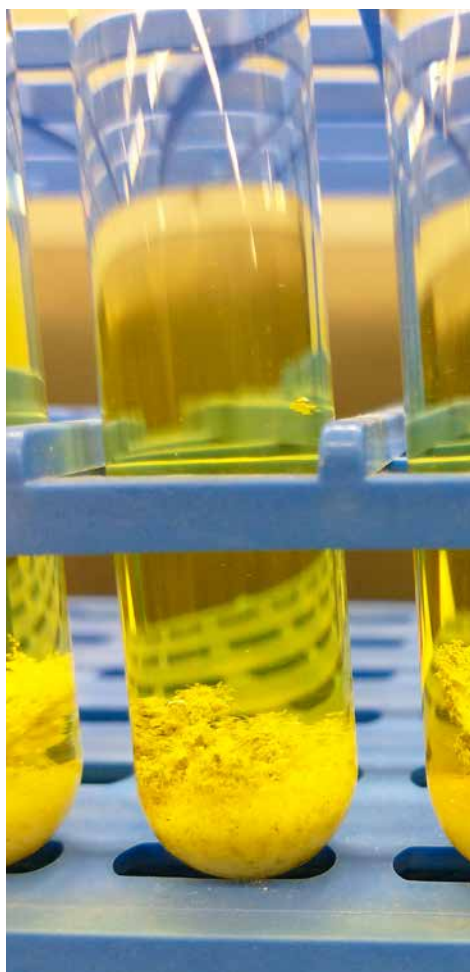
This digestion uses a combination of concentrated hydrochloric and nitric acids to leach sulphides, some oxides and some silicates. Mineral phases which are hardly (if at all) attacked include barite, zircon, monazite, sphene, chromite, gahnite, garnet, ilmenite, rutile and cassiterite. The balance of silicates and oxides are only slightly to moderately attacked, depending on the degree of alteration. Generally, but not always, most base metals and gold are usually dissolved.

Note: Results from acid digestions may be lab dependent or lab operator dependent. Actlabs has automated this aspect of digestion using a microprocessor designed hotbox to accurately reproduce digestion conditions every time.

Note: For Code Ultratrace 1, Code Ultratrace 2 and Code UT-1M, Au is semi-quantitative when using a 0.5g sample.

15g or 30g is recommend for soils, sediments and vegetation samples only.

Packages that involve 15g and 30g sample size will require RX10 (pulp weight report)



Package	ICP-OES (ppm)		ICP-MS (ppm)		ICP-OES + ICP-MS (ppm)
	1E	1E3	UT-1M	Ultratrace 1	Ultratrace 2
Ag	0.2 - 100	0.2 - 100	0.1 - 100	0.002 - 100	0.002 - 100
Al	-	0.01 - 10 %	0.01 - 8 %	0.01 - 8 %	0.01 - 8 %
As	-	2 - 10,000	0.5 - 10,000	0.1 - 10,000	0.1 - 10,000
Au	-	-	0.5 - 1,000 ppb	0.5 - 10,000 ppb	0.5 - 10,000 ppb
B	-	10 - 10,000	20 - 2,000	1 - 5,000	1 - 5,000
Ba	-	10 - 10,000	1 - 10,000	0.5 - 6,000	0.5 - 6,000
Be	-	0.5 - 1,000	-	0.1 - 1,000	0.1 - 1,000
Bi	-	2 - 10,000	0.1 - 2,000	0.02 - 2,000	0.02 - 2,000
Ca	-	0.01 - 10 %	0.01 - 50 %	0.01 - 50 %	0.01 - 50 %
Cd	0.5 - 2,000	0.5 - 2,000	0.1 - 2,000	0.01 - 2,000	0.01 - 1,000
Ce	-	-	-	0.01 - 10,000	0.01 - 10,000
Co	-	1 - 10,000	0.1 - 5,000	0.1 - 5,000	0.1 - 5,000
Cr	-	1 - 10,000	1 - 10,000	1 - 10,000	1 - 10,000
Cs	-	-	-	0.02 - 500	0.02 - 500
Cu	1 - 10,000	1 - 10,000	0.2 - 10,000	0.2 - 10,000	0.2 - 10,000
Dy	-	-	-	0.1 - 1,000	0.1 - 1,000
Er	-	-	-	0.1 - 1,000	0.1
Eu	-	-	-	0.1 - 100	0.1
Fe	-	0.01 - 30 %	0.01 - 30 %	0.01 - 30 %	0.01 - 30 %
Ga	-	10 - 10,000	1 - 1,000	0.02 - 500	0.02 - 500
Gd	-	-	-	0.1 - 1,000	0.1 - 1,000
Ge	-	-	-	0.1 - 500	0.1 - 500
Hf	-	-	-	0.1 - 500	0.1 - 500
Hg	1 - 10,000	1 - 10,000	0.01 - 50	10 - 10,000ppb	10 - 10,000 ppb
Ho	-	-	-	0.1 - 1,000	0.1 - 1,000
In	-	-	-	0.02 - 500	0.02 - 500
K	-	0.01 - 10 %	0.01 - 5 %	0.01 - 5 %	0.01 - 5 %
La	-	10 - 10,000	1 - 10,000	0.5 - 10,000	0.5 - 1,000
Li	-	-	-	0.1 - 10,000	0.1 - 10,000
Lu	-	-	-	0.1 - 100	0.1 - 100
Mg	-	0.01 - 25 %	0.01 - 10 %	0.01 - 10 %	0.01 - 10 %
Mn	2 - 100,000	5 - 100,000	1 - 10,000	1 - 10,000	1 - 10,000
Mo	2 - 10,000	1 - 10,000	0.1 - 10,000	0.01 - 10,000	0.01 - 10,000
Na	-	0.001 - 10 %	0.001 - 5 %	0.001 - 5 %	0.001 - 5 %
Nb	-	-	-	0.1 - 500	0.1 - 500
Nd	-	-	-	0.02 - 5,000	0.02 - 5,000
Ni	1 - 10,000	1 - 10,000	0.1 - 10,000	0.1 - 10,000	0.1 - 10,000
P	-	0.001 - 5 %	0.001 - 5 %	0.001 - 5 %	0.001 - 5 %
Pb	2 - 5,000	2 - 5,000	0.1 - 5,000	0.1 - 5,000	0.1 - 5,000
Pr	-	-	-	0.1 - 1,000	0.1 - 1,000
Rb	-	-	-	0.1 - 500	0.1 - 500
Re	-	-	-	0.001 - 100	0.001 - 100
S +	0.001 - 20 %	0.001 - 20 %	1 - 20 %	1 - 20 %	0.001 - 20 %
Sb	-	2 - 10,000	0.1 - 500	0.02 - 500	0.02 - 500
Sc	-	1 - 10,000	0.1 - 10,000	0.1 - 10,000	0.1 - 10,000
Se	-	-	0.5 - 10,000	0.1 - 10,000	0.1 - 10,000
Sm	-	-	-	0.1 - 100	0.1 - 100
Sn	-	-	-	0.05 - 200	0.05 - 200
Sr	-	1 - 10,000	1 - 5,000	0.5 - 5,000	0.5 - 5,000
Ta	-	-	-	0.05 - 50	0.05 - 50
Tb	-	-	-	0.1 - 100	0.1 - 100
Te	-	1 - 500	0.2 - 500	0.02 - 500	0.02 - 500
Th	-	20 - 10,000	0.1 - 200	0.1 - 200	0.1 - 200
Ti	-	0.01 - 10 %	0.001 - 10 %	0.001 - 10 %	0.01 - 10 %
Tl	-	2 - 10,000	0.1 - 500	0.02 - 500	0.02 - 500
Tm	-	-	-	0.1 - 1,000	0.1 - 1,000
U	-	10 - 10,000	-	0.1 - 10,000	0.1 - 10,000
V	-	1 - 10,000	2 - 1,000	1 - 1,000	1 - 1,000
W	-	10 - 200	0.1 - 200	0.1 - 200	0.1 - 200
Y	-	1 - 1,000	-	0.01 - 500	0.01 - 500
Yb	-	-	-	0.1 - 200	0.1 - 200
Zn	1 - 10,000	2 - 10,000	1 - 5,000	0.1 - 5,000	0.1 - 5,000
Zr	-	1 - 10,000	-	0.1 - 5,000	0.1 - 5,000
0.5g Price:	\$13.50	\$14.25	\$20.00	\$25.50	\$28.75
		15g Price	\$30.00	\$33.50	
		30g Price	\$33.65	\$36.75	

Extraction of each element by Aqua Regia is dependent on mineralogy
+ Sulphide sulphur and soluble sulphates are extracted

4-Acid "Near Total" Digestion

This acid attack is the most vigorous digestion used in geochemistry analysis and uses hydrochloric, nitric, perchloric and hydrofluoric acids. Even with this digestion, certain minerals (barite, gahnite, chromite, cassiterite, etc.) may only be partially dissolved or stable in solution. Other minerals including zircon, sphene and magnetite may not be totally dissolved. Most other silicates will be dissolved; however, some elements will be erratically volatilized, including As, Sb, Cr, U and Au.

Near-Total digestion cannot be used to obtain accurate determinations of REE, Ta, Nb, As, Sb, Sn, Hg, Cr, Au and U.



Package	ICP-OES (ppm)		ICP-MS (ppm)		ICP-OES + ICP-MS (ppm)	
	1F2	UT-4M	Ultratrace 4	Ultratrace 6	UT-6M	
Ag	0.3 - 100	0.1 - 100	0.05 - 100	0.05 - 100	0.01 - 100	
Al	0.01 - 50 %	0.01 - 20 %	0.01 - 10 %	0.01 - 10 %	0.01 - 50 %	
As	3 - 5,000	1 - 10,000	0.1 - 10,000	0.1 - 10,000	0.2 - 10,000	
B	-	-	20 - 6,000	-	-	
Ba	7 - 1,000	1 - 10,000	1 - 5,000	1 - 5,000	10 - 10,000	
Be	1 - 10,000	1 - 1,000	0.1 - 1,000	0.1 - 1,000	0.05 - 1,000	
Bi	2 - 10,000	0.1 - 4,000	0.02 - 2,000	0.02 - 2,000	0.01 - 10,000	
Ca	0.01 - 70 %	0.01 - 40 %	0.01 - 50 %	0.01 - 50 %	0.01 - 50 %	
Cd	0.3 - 2,000	0.1 - 4,000	0.1 - 1,000	0.1 - 1,000	0.02 - 1,000	
Ce	-	1 - 2,000	0.1 - 10,000	0.1 - 10,000	0.01 - 500	
Co	1 - 10,000	0.2 - 4,000	0.1 - 500	0.1 - 500	0.1 - 10,000	
Cr	1 - 10,000	1 - 10,000	1 - 5,000	1 - 5,000	1 - 10,000	
Cs	-	0.1 - 10,000	0.05 - 100	0.05 - 100	0.05 - 500	
Cu	1 - 10,000	0.1 - 10,000	0.2 - 10,000	0.2 - 10,000	0.2 - 10,000	
Dy	-	-	0.1 - 5,000	0.1 - 5,000	-	
Er	-	-	0.1 - 1,000	0.1 - 1,000	-	
Eu	-	-	0.05 - 100	0.05 - 100	-	
Fe	0.01 - 50 %	0.01 - 60 %	0.01 - 50 %	0.01 - 50 %	0.01 - 50 %	
Ga	1 - 10,000	-	0.1 - 500	0.1 - 500	0.05 - 10,000	
Gd	-	-	0.1 - 5,000	0.1 - 5,000	-	
Ge	-	-	0.1 - 500	0.1 - 500	0.05 - 500	
Hf	-	0.1 - 1,000	0.1 - 500	0.1 - 500	0.1 - 500	
Ho	-	-	0.1 - 1,000	0.1 - 1,000	-	
In	-	-	0.1 - 100	0.1 - 100	0.005 - 500	
K	0.01 - 10 %	0.01 - 10 %	0.01 - 5 %	0.01 - 5 %	0.01 - 10 %	
La	-	0.1 - 2,000	0.1 - 10,000	0.1 - 10,000	0.5 - 10,000	
Li	1 - 10,000	0.1 - 2,000	0.5 - 400	0.5 - 400	0.2 - 10,000	
Lu	-	-	0.1 - 100	0.1 - 100	-	
Mg	0.01 - 50 %	0.01 - 30 %	0.01 - 50 %	0.01 - 50 %	0.01 - 50 %	
Mn	1 - 100,000	1 - 10,000	1 - 10,000	1 - 10,000	5 - 100,000	
Mo	1 - 10,000	0.1 - 4,000	0.05 - 10,000	0.1 - 10,000	0.05 - 10,000	
Na	0.01 - 10 %	0.001 - 10 %	0.01 - 3 %	0.01 - 3 %	0.01 - 10 %	
Nb	-	0.1 - 2,000	0.1 - 500	0.1 - 500	0.1 - 500	
Nd	-	-	0.1 - 10,000	0.1 - 10,000	-	
Ni	1 - 10,000	0.1 - 10,000	0.5 - 5,000	0.5 - 5,000	0.2 - 10,000	
P	0.001 - 10 %	0.001 - 5 %	-	0.001 - 10 %	10 - 10,000	
Pb	3 - 5,000	0.1 - 5,000	0.5 - 5,000	0.5 - 5,000	0.5 - 10,000	
Pr	-	-	0.1 - 5,000	0.1 - 1,000	-	
Rb	-	0.1 - 2,000	0.2 - 500	0.2 - 5,000	0.1 - 10,000	
Re	-	-	0.001 - 100	0.001 - 100	0.002 - 50	
S +	0.01 - 20 %	1 - 10 %	-	0.01 - 20 %	0.01 - 10 %	
Sb	5 - 10,000	0.1 - 4,000	0.1 - 500	0.1 - 500	0.05 - 10,000	
Sc	4 - 10,000	1 - 200	-	1 - 5,000	0.1 - 10,000	
Se	-	-	0.1 - 1,000	0.1 - 1,000	1 - 1,000	
Sm	-	-	0.1 - 100	0.1 - 100	-	
Sn	-	0.1 - 2,000	1 - 200	1 - 200	0.2 - 500	
Sr	1 - 10,000	1 - 10,000	0.2 - 10,000	0.2 - 1,000	0.2 - 10,000	
Ta	-	0.1 - 2,000	0.1 - 1,000	0.1 - 1,000	0.05 - 100	
Tb	-	-	0.1 - 100	0.1 - 100	-	
Te	2 - 10,000	-	0.1 - 500	0.1 - 500	0.05 - 500	
Th	-	0.1 - 4,000	0.1 - 500	0.1 - 500	0.01 - 10,000	
Ti	0.01 - 10 %	0.001 - 10 %	-	0.0005 - 10 %	0.005 - 10 %	
Tl	5 - 10,000	0.05 - 10,000	0.05 - 500	0.05 - 500	0.02 - 10,000	
Tm	-	-	0.1 - 1,000	0.1 - 1,000	-	
U	10 - 10,000	0.1 - 4,000	0.1 - 10,000	0.1 - 10,000	0.1 - 10,000	
V	2 - 10,000	4 - 10,000	1 - 10,000	1 - 10,000	1 - 10,000	
W	5 - 10,000	0.1 - 200	0.1 - 200	0.1 - 200	0.1 - 10,000	
Y	1 - 1,000	0.1 - 2,000	0.1 - 10,000	0.1 - 10,000	0.1 - 500	
Yb	-	-	0.1 - 5,000	0.1 - 5,000	-	
Zn	1 - 10,000	1 - 10,000	0.2 - 10,000	0.2 - 10,000	2 - 10,000	
Zr	5 - 10,000	0.1 - 2,000	1 - 5,000	1 - 5,000	0.5 - 500	
Price:	\$19.00	\$25.75	\$29.00	\$36.50	\$32.50	

Extraction of each element by 4-Acid Digestion is dependent on mineralogy
+ Sulphide sulphur and soluble sulphates are extracted

Exploration Geochemistry

Intermediate Ore Grade

These packages are meant for mid-high level mineralized samples.

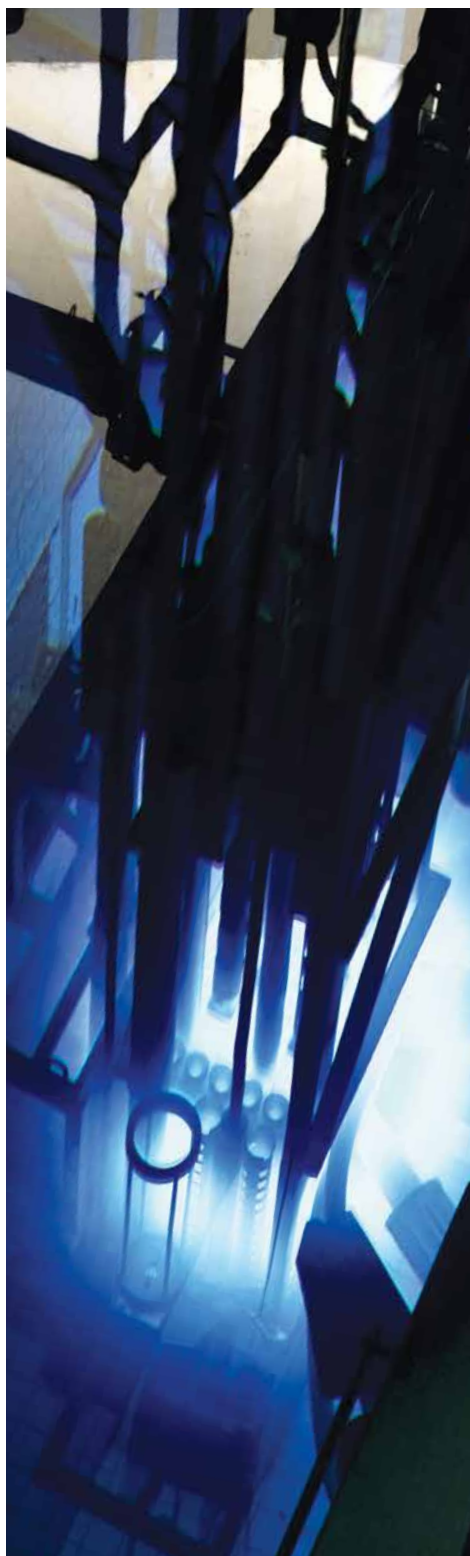


Package	Aqua Regia (ppm)		Four-Acid (ppm)		
	1E3-ORE	UT1-ORE	1F2-ORE	UT4-ORE	UT6-ORE
Ag	2 - 100	1 - 100	3 - 100	0.5 - 100	0.5 - 100
Al	0.1 - 10 %	0.1 - 8 %	0.1 - 50 %	0.1 - 10 %	0.1 - 10 %
As	20 - 10,000	5 - 10,000	30 - 5,000	1 - 10,000	1 - 10,000
Au	-	5 - 1,000 ppb	-	-	-
B	100 - 10,000	200 - 2,000	-	200 - 6,000	-
Ba	100 - 10,000	10 - 10,000	70 - 1,000	10 - 5,000	10 - 5,000
Be	5 - 1,000	-	10 - 10,000	1 - 1,000	1 - 1,000
Bi	20 - 10,000	1 - 2,000	20 - 10,000	0.2 - 2,000	0.2 - 2,000
Ca	0.1 - 10 %	0.1 - 25 %	0.1 - 70 %	0.1 - 50 %	0.1 - 50 %
Cd	5 - 2,000	1 - 2,000	3 - 2,000	1 - 1,000	1 - 1,000
Ce	-	-	-	1 - 10,000	1 - 10,000
Co	10 - 10,000	1 - 5,000	10 - 10,000	1 - 500	1 - 500
Cr	10 - 10,000	10 - 10,000	10 - 10,000	10 - 5,000	10 - 5,000
Cs	-	-	-	0.5 - 100	0.5 - 100
Cu	10 - 10,000	2 - 10,000	10 - 10,000	2 - 10,000	2 - 10,000
Dy	-	-	-	1 - 5,000	1 - 5,000
Er	-	-	-	1 - 1,000	1 - 1,000
Eu	-	-	-	0.5 - 100	0.5 - 100
Fe	0.1 - 30 %	0.1 - 30 %	0.1 - 50 %	0.1 - 50 %	0.1 - 50 %
Ga	100 - 10,000	10 - 1,000	10 - 10,000	1 - 500	1 - 500
Gd	-	-	-	1 - 5,000	1 - 5,000
Ge	-	-	-	1 - 500	1 - 500
Hf	-	-	-	1 - 500	1 - 500
Hg	10 - 10,000	0.1 - 50	-	-	-
Ho	-	-	-	1 - 1,000	1 - 1,000
In	-	-	-	1 - 100	1 - 100
K	0.01 - 10 %	0.1 - 5 %	0.1 - 10 %	0.1 - 5 %	0.1 - 5 %
La	100 - 10,000	10 - 10,000	-	1 - 10,000	1 - 10,000
Li	-	-	10 - 10,000	5 - 400	5 - 400
Lu	-	-	-	1 - 100	1 - 100
Mg	0.1 - 25 %	0.1 - 10 %	0.1 - 50 %	0.1 - 50 %	0.1 - 50 %
Mn	50 - 100,000	10 - 10,000	10 - 100,000	10 - 10,000	10 - 10,000
Mo	10 - 10,000	1 - 10,000	10 - 10,000	0.5 - 10,000	1 - 10,000
Na	0.01 - 10 %	0.01 - 5 %	0.1 - 10 %	0.1 - 3 %	0.1 - 3 %
Nb	-	-	-	1 - 500	1 - 500
Nd	-	-	-	1 - 10,000	1 - 10,000
Ni	10 - 10,000	1 - 10,000	10 - 10,000	5 - 5,000	5 - 5,000
P	0.01 - 5 %	0.01 - 5 %	0.01 - 10 %	-	0.01 - 10 %
Pb	20 - 5,000	1 - 5,000	30 - 5,000	5 - 5,000	5 - 5,000
Pr	-	-	-	1 - 5,000	1 - 1,000
Rb	-	-	-	2 - 500	2 - 5,000
Re	-	-	-	0.01 - 100	0.01 - 100
S +	0.1 - 20 %	10 - 20 %	0.1 - 20 %	-	0.1 - 20 %
Sb	20 - 10,000	1 - 500	50 - 10,000	1 - 500	1 - 500
Sc	10 - 10,000	1 - 10,000	40 - 10,000	-	10 - 5,000
Se	-	5 - 10,000	-	1 - 1,000	1 - 1,000
Sm	-	-	-	1 - 100	1 - 100
Sn	-	-	-	10 - 200	10 - 200
Sr	10 - 10,000	10 - 5,000	10 - 10,000	2 - 10,000	2 - 1,000
Ta	-	-	-	1 - 1,000	1 - 1,000
Tb	-	-	-	1 - 100	1 - 100
Te	10 - 500	2 - 500	20 - 10,000	1 - 500	1 - 500
Th	200 - 10,000	1 - 200	-	1 - 500	1 - 500
Ti	0.1 - 10 %	0.01 - 10 %	0.1 - 10 %	-	0.005 - 10 %
Tl	20 - 10,000	1 - 500	50 - 10,000	0.5 - 500	0.5 - 500
Tm	-	-	-	1 - 1,000	1 - 1,000
U	100 - 10,000	-	100 - 10,000	1 - 10,000	1 - 10,000
V	10 - 10,000	20 - 1,000	20 - 10,000	10 - 10,000	10 - 10,000
W	100 - 200	1 - 200	50 - 10,000	1 - 200	1 - 200
Y	10 - 1,000	-	10 - 1,000	1 - 10,000	1 - 10,000
Yb	-	-	-	1 - 5,000	1 - 5,000
Zn	20 - 10,000	10 - 5,000	10 - 10,000	2 - 10,000	2 - 10,000
Zr	10 - 10,000	-	50 - 10,000	10 - 5,000	10 - 5,000
Price:	\$15.75	\$25.20	\$21.55	\$30.00	\$40.45

Extraction of each element by 4-Acid Digestion is dependent on mineralogy
+ Sulphide sulphur and soluble sulphates are extracted

INAA

Instrumental Neutron Activation Analysis
- Samples are encapsulated and irradiated in a nuclear reactor. After a suitable decay, samples are measured for the emitted gamma ray fingerprint. INAA is very good for Au, Co, As, Sb, W, Ta, U, Th, Cs, In, Re, Cl and lower levels of most LREE.



Package	INAA (ppm)			
	1D	1D Enhanced	5B - Other Elements	5S - Short Lived Isotopes
Ag	5 - 100,000	5 - 100,000	-	-
Al	-	-	-	1 - 100,000
As	2 - 10,000	0.5 - 10,000	1 - 10,000	-
Au	5 - 30,000 ppb	2 - 30,000 ppb	5 - 30,000 ppb	-
Ba	100 - 500,000	50 - 500,000	100 - 100,000	-
Br	1 - 1,000	0.5 - 1,000	0.5 - 1,000	5 - 10,000
Ca	1 - 50 %	1 - 50 %	-	-
Ce	3 - 10,000	3 - 10,000	3 - 10,000	-
Co	5 - 5,000	1 - 5,000	0.5 - 10,000	-
Cl	-	-	-	100 - 100,000
Cr	10 - 100,000	5 - 100,000	1 - 100,000	-
Cs	2 - 10,000	1 - 10,000	0.5 - 10,000	-
Cu	-	-	-	5 - 2,500
Dy	-	-	-	0.5 - 5,000
Eu	0.2 - 2,000	0.2 - 2,000	0.2 - 2,000	-
Fe	0.02 - 75 %	0.01 - 75 %	0.01 - 75 %	-
Ga	-	-	-	5 - 10,000
Hf	1 - 500	1 - 500	0.5 - 500	-
Hg	1 - 1,000	1 - 1,000	-	-
I	-	-	-	0.5 - 5,000
In	-	-	-	0.1 - 5,000
Ir	5 - 10,000 ppb	5 - 10,000 ppb	-	-
La	1 - 10,000	0.5 - 10,000	0.1 - 10,000	-
Lu	0.05 - 1,000	0.05 - 1,000	0.05 - 1,000	-
Mg	-	-	-	0.05 - 50 %
Mn	-	-	-	0.1 - 10,000
Mo	5 - 10,000	1 - 10,000	2 - 10,000	-
Na	0.05 - 10 %	0.01 - 10 %	100 - 100,000	50 - 200,000
Nd	5 - 10,000	5 - 10,000	5 - 10,000	-
Ni	50 - 10,000	20 - 10,000	-	-
Rb	30 - 10,000	15 - 10,000	20 - 10,000	-
Re	-	-	-	1 - 5,000
Sb	0.2 - 10,000	0.1 - 10,000	0.1 - 10,000	-
Sc	0.1 - 200	0.1 - 200	0.1 - 200	-
Se	5 - 10,000	3 - 10,000	2 - 10,000	-
Sm	0.1 - 10,000	0.1 - 10,000	0.01 - 10,000	-
Sn	0.05 - 10 %	0.02 - 10 %	-	-
Sr	0.1 - 40 %	0.05 - 40 %	-	-
Ta	1 - 10,000	0.5 - 10,000	0.5 - 10,000	-
Tb	0.5 - 1,000	0.5 - 1,000	-	-
Th	0.5 - 10,000	0.5 - 10,000	0.2 - 10,000	-
Ti	-	-	-	50 - 100,000
U	0.5 - 10,000	0.5 - 10,000	0.1 - 10,000	-
V	-	-	-	0.1 - 10,000
W	4 - 10,000	1 - 10,000	2 - 10,000	-
Yb	0.2 - 1,000	0.2 - 1,000	0.2 - 1,000	-
Zn	50 - 100,000	50 - 100,000	-	-
Price:	\$27.50	\$31.10	One Element \$24.00	One Element \$50.05
	Each Additional Element		Add \$3.40	Add \$8.40

Key advantages of INAA include:

- Total determination of selected resistive and volatile elements, including Au
- Up to 30g of material can be analyzed for a more representative sub-sample
- Non-destructive, allowing material to be used for other analysis

Exploration Geochemistry

Multi-Method Analyses

ICP-OES and ICP-MS analyses by 4-acid (hydrochloric, nitric, perchloric and hydrofluoric) digestion are “near total” digestions. INAA analysis yields total metals.

NOTE: Results from acid digestions may be lab dependent or lab operator dependent. Actlabs has automated this aspect of digestion using a microprocessor designed hotbox to accurately reproduce digestion conditions every time.

Pressed Pellet XRF Analysis

Code 4C1		
Group	Element	Range (ppm)
A	Ba	5-10,000
	Ga	5-10,000
	Nb	1-10,000
	Rb	2-10,000
	Sr	2-10,000
	Y	2-10,000
	Zr	5-10,000
B	Co	5-1,000
	Cr	5-10,000
	Cu	5-2,500
	Ni	4-4,000
	Pb	5-1,000
	V	5-10,000
	Zn	5-1,000
	Sn	5-10,000
	Zn	0.001-1%
Any One Element		\$12.50
Each Additional Element		\$4.25
All of Group A Elements		\$23.00
All of Group B Elements		\$23.00

Package	INAA+ICP-OES (ppm)	INAA + ICP-OES + ICP-MS (ppm)	INAA+ICP-MS (ppm)
	1H	Ultratrace 3	Ultratrace 5
Ag	0.3 - 10,000	0.05 - 10,000	0.05 - 100,000
Al	0.01 - 50 %	0.01 - 50 %	-
As	0.5 - 10,000	0.5 - 10,000	0.5 - 10,000
Au	2 - 30,000 ppb	2 - 30,000 ppb	2 - 30,000 ppb
Ba	50 - 500,000	1 - 100,000	1 - 100,000
Be	1 - 10,000	0.1 - 1,000	0.1 - 1,000
Bi	2 - 10,000	0.02 - 10,000	0.02 - 2,000
Br	0.5 - 5,000	0.5 - 5,000	0.5 - 5,000
Ca	0.01 - 70 %	0.01 - 70 %	0.01 - 50 %
Cd	0.3 - 2,000	0.1 - 2,000	0.1 - 1,000
Ce	3 - 10,000	0.1 - 10,000	0.1 - 10,000
Co	1 - 5,000	1 - 5,000	0.1 - 5,000
Cr	2 - 100,000	1 - 10,000	1 - 100,000
Cs	1 - 10,000	0.05 - 5,000	0.05 - 5,000
Cu	1 - 10,000	0.2 - 10,000	0.2 - 10,000
Dy	-	0.1 - 5000	0.1 - 5000
Er	-	0.1 - 1,000	0.1 - 1,000
Eu	0.2 - 10,000	0.05 - 1,000	0.05 - 100
Fe	0.01 - 70 %	0.01 - 70 %	0.01 - 50 %
Ga	-	0.1 - 500	0.1 - 500
Gd	-	0.1 - 500	0.1 - 5,000
Ge	-	0.1 - 500	0.1 - 500
Hf	1 - 5,000	0.1 - 5,000	1 - 5,000
Hg	1 - 1,000	1 - 1,000	1 - 1,000
Ho	-	0.1 - 1,000	0.1 - 1,000
In	-	0.1 - 100	0.1 - 100
Ir	5 - 10,000 ppb	5 - 10,000 ppb	-
K	0.01 - 10 %	0.01 - 10 %	0.01 - 5 %
La	0.5 - 10,000	0.5 - 10,000	0.1 - 10,000
Li	1 - 10,000	1 - 10,000	0.5 - 400
Lu	0.05 - 10,000	0.1 - 100	0.1 - 100
Mg	0.01 - 50 %	0.01 - 50 %	0.01 - 10 %
Mn	1 - 100,000	1 - 100,000	1 - 10,000
Mo	1 - 10,000	0.2 - 10,000	0.05 - 10,000
Na	0.01 - 50 %	0.01 - 20 %	0.01 - 20 %
Nb	-	0.1 - 500	0.1 - 500
Nd	5 - 10,000	0.01 - 10,000	0.1 - 10,000
Ni	1 - 100,000	0.5 - 100,000	0.5 - 100,000
P	0.001 - 10 %	0.001 - 10 %	-
Pb	3 - 5,000	0.5 - 5,000	0.5 - 5,000
Pr	-	0.1 - 1,000	0.1 - 1,000
Rb	15 - 10,000	0.2 - 5,000	0.2 - 5,000
Re	-	0.001 - 100	0.001 - 100
S +	0.01 - 20 %	0.01 - 20 %	-
Sb	0.1 - 10,000	0.1 - 10,000	0.1 - 10,000
Sc	0.1 - 1,000	0.1 - 1,000	0.1 - 1,000
Se	3 - 10,000	0.1 - 10,000	0.1 - 10,000
Sm	0.1 - 10,000	0.1 - 100	0.1 - 100
Sn	0.02 - 20 %	1 - 200	1 - 200
Sr	1 - 10,000	0.2 - 1,000	0.2 - 1,000
Ta	0.5 - 10,000	0.1 - 10,000	0.1 - 10,000
Tb	0.5 - 10,000	0.1 - 5,000	0.1 - 100
Te	-	0.02 - 500	0.1 - 500
Th	0.2 - 10,000	0.1 - 10,000	0.1 - 10,000
Ti	0.01 - 10 %	0.01 - 10 %	-
Tl	-	0.05 - 500	0.05 - 500
Tm	-	0.1 - 1,000	0.1 - 1,000
U	0.5 - 10,000	0.1 - 10,000	0.1 - 10,000
V	2 - 10,000	2 - 10,000	1 - 1,000
W	1 - 10,000	1 - 10,000	1 - 10,000
Y	1 - 1,000	0.01 - 10,000	0.1 - 10,000
Yb	0.2 - 10,000	0.1 - 5,000	0.1 - 5,000
Zn	1 - 100,000	0.5 - 100,000	0.5 - 100,000
Zr	-	1 - 5,000	1 - 5,000
Price:	\$41.25	\$56.00	\$42.25

Extraction of each element by 4-Acid Digestion is dependent on mineralogy
+ Sulphide sulphur and soluble sulphates are extracted

Litho geochemistry and Whole Rock Analysis

Litho geochemistry

The most aggressive fusion technique employs a lithium metaborate/ tetraborate fusion. Fusion is performed by a robot at Actlabs, which provides a fast fusion of the highest quality in the industry. The resulting molten bead is rapidly digested in a weak nitric acid solution. The fusion ensures that the entire sample is dissolved. It is only with this attack that major oxides including SiO₂, refractory minerals (i.e. zircon, sphene, monazite, chromite, gahnite, etc.), REE and other high field strength elements are put into solution. High sulphide-bearing rocks may require different treatment but can still be adequately analyzed. Analysis is by ICP-OES and ICP-MS. Quality of data is exceptional and can be used for the most exacting applications. Values on replicates and standards are provided at no cost, as are REE chondrite plots. Eu determinations are semiquantitative in samples having extremely high Ba concentrations (> 5 %).

Mineralized Samples: Although intended primarily for unmineralized samples, mineralized samples can be analyzed. However, data may be semiquantitative for chalcophile elements (Ag, As, Bi, Co, Cu, Mo, Ni, Pb, Sb, Sn, W and Zn). For quantitative chalcophile data see Quant add-ons below.

Code 4B: Lithium Borate Fusion / ICP-OES Whole Rock Package. Data meets or exceeds quality of data by fusion XRF. 3g required.

Code 4B2: Lithium Borate Fusion / ICP-MS Trace Element package: Codes 4B2-STD and 4B2-Research both provide research quality data. 0.5g required.

Research designation: indicates lower detection limits.

Code 4Litho and Code 4Lithoresearch: The 4B and 4B2 packages are combined. 5 g required.

Quant designation: For quantitative values of chalcophile elements a surcharge will apply. A minimum sample weight of 5 g is required.

(+) Code 4B1: Optional elements by multiacid digestion. Please add 0.5 g.

(++) Code 4B-INAA: Optional elements are available by INAA. Please add 0.5 to 30 g depending on sample size you prefer to analyze for Au with this option.

Add-ons	Surcharge
4B1	\$13.00
4B-INAA	\$23.00
QUANT	\$22.00

Package	WRA-ICP	Trace Element	Trace Element	WRA+ICP	WRA+Trace
	4B	4B2-Std	4B2-Research	4 Litho	4 Lithoresearch
Al ₂ O ₃	0.01%	-	-	0.01%	0.01%
CaO	0.01%	-	-	0.01%	0.01%
Fe ₂ O ₃	0.01%	-	-	0.01%	0.01%
K ₂ O	0.01%	-	-	0.01%	0.01%
MgO	0.01%	-	-	0.01%	0.01%
MnO	0.001%	-	-	0.001%	0.001%
Na ₂ O	0.01%	-	-	0.01%	0.01%
P ₂ O ₅	0.01%	-	-	0.01%	0.01%
SiO ₂	0.01%	-	-	0.01%	0.01%
TiO ₂	0.001%	-	-	0.001%	0.001%
LOI	0.01%	-	-	0.01%	0.01%
Ag	(0.3+)	0.5	0.5	0.5	0.5
As	(0.5++)	5 (0.5++)	5 (0.5++)	5 (0.5++)	5 (0.5++)
Au	(2ppb++)	(2ppb++)	(2ppb++)	(2ppb++)	(2ppb++)
Ba	2	3	3	2	2
Be	1			1	1
Bi		0.4	0.1	0.4	0.1
Br	(0.5++)	(0.5++)	(0.5++)	(0.5++)	(0.5++)
Cd	(0.5+)	(0.5+)	(0.5+)	(0.5+)	(0.5+)
Co	(1++)	1	1	1	1
Cr	(0.5++)	20 (0.5++)	20 (0.5++)	20 (0.5++)	20 (0.5++)
Cs	(1++)	0.5	0.1	0.5	0.1
Cu	(1+)	10 (1+)	10 (1+)	10 (1+)	10 (1+)
Fe		(0.01%++)	(0.01%++)		
Ga		1	1	1	1
Ge		1	0.5	1	0.5
Hf	(1++)	0.2	0.1	0.2	0.1
In		0.2	0.1	0.2	0.1
Ir	(5ppb++)	(5ppb++)	(5ppb++)	(5ppb++)	(5ppb++)
Mo	(5++)	2	2	2	2
Na		(0.01%++)	(0.01%++)		
Nb		1	0.2	1	0.2
Ni	(1+)	20 (1+)	20 (1+)	20 (1+)	20 (1+)
Pb	(5+)	5	5	5	5
Rb	(20++)	2	1	2	1
S	(10+)	(10+)	(10+)	(10+)	(10+)
Sb	(0.2++)	0.5 (0.2++)	0.2	0.5 (0.2++)	0.2
Sc	1	(0.1++)	(0.1++)	1 (0.1++)	1 (0.1++)
Se	(3++)	(3++)	(3++)	(3++)	(3++)
Sn		1	1	1	1
Sr	2	2	2	2	2
Ta	(0.5++)	0.1	0.01	0.1	0.01
Th	(0.2++)	0.1	0.05	0.1	0.05
Tl		0.1	0.05	0.1	0.05
U	(0.5++)	0.1	0.01	0.1	0.01
V	5	5	5	5	5
W	(1++)	1	0.5	1	0.5
Y	1	1	0.5	1	0.5
Zn	(1+)	30 (1+)	30 (1+)	30 (1+)	30 (1+)
Zr	2	5	1	2	1
La	(0.5++)	0.1	0.05	0.1	0.05
Ce	(3++)	0.1	0.05	0.1	0.05
Pr		0.05	0.01	0.05	0.01
Nd	(5++)	0.1	0.05	0.1	0.05
Sm	(0.1++)	0.1	0.01	0.1	0.01
Eu	(0.2++)	0.05	0.005	0.05	0.005
Gd		0.1	0.01	0.1	0.01
Tb	(0.5++)	0.1	0.01	0.1	0.01
Dy		0.1	0.01	0.1	0.01
Ho		0.1	0.01	0.1	0.01
Er		0.1	0.01	0.1	0.01
Tm		0.05	0.005	0.05	0.005
Yb	(0.2++)	0.01	0.002	0.01	0.002
Lu	(0.005++)	0.01	0.002	0.01	0.002
1-10 Samples	\$39.00	\$63.00	\$105.00	\$90.00	\$130.00
11+ Samples	\$34.00	\$58.00	\$86.00	\$75.00	\$105.00

All elements are in ppm except where noted. Prices per sample.
+ Sulphide sulphur and soluble sulphates are extracted

Litho geochemistry and Whole Rock Analysis

Code 4C: Lithium Borate Fusion / XRF Whole Rock Package. Samples containing >1% barite or sulphide should be analyzed with Code 4B. A minimum sample weight of 3g is required. We reserve the right to change analytical method to Code 4B if required by the sample composition.

WRA-XRF

Package	4C
Al ₂ O ₃	0.01%
CaO	0.01%
Cr ₂ O ₃	0.01%
Co ₃ O ₄	0.005%
CuO	0.005%
Fe ₂ O ₃	0.01%
K ₂ O	0.01%
MgO	0.01%
MnO	0.001%
Na ₂ O	0.01%
NiO	0.003%
P ₂ O ₅	0.01%
SiO ₂	0.01%
TiO ₂	0.01%
V ₂ O ₅	0.003%
LOI	0.01%
1-10 Samples	\$37.00
11+ Samples	\$33.00

When submitting pulp material it must be 95% -74 µm or additional pulverization charges will apply.

Add-ons	Surcharge
4E-XRF	\$25.20
4E ICP-MS	\$41.50

INAA and multi-methods

Package	4A-research	4E-expl.	4E-research
Al ₂ O ₃	-	0.01%	0.01%
CaO	-	0.01%	0.01%
Fe ₂ O ₃	-	0.01%	0.01%
K ₂ O	-	0.01%	0.01%
MgO	-	0.01%	0.01%
MnO	-	0.01%	0.01%
Na ₂ O	-	0.01%	0.01%
P ₂ O ₅	-	0.01%	0.01%
SiO ₂	-	0.01%	0.01%
TiO ₂	-	0.01%	0.01%
LOI	-	0.01%	0.01%
Ag	2	0.5	0.5
As	1	2	1
Au	2 ppb	5 ppb	1 ppb
Ba	20	3	1
Be	-	1	1
Bi	-	2	2 (0.1 ††)
Br	0.5	1	0.5
Ca	0.2%	-	-
Cd	-	0.5	0.5
Co	0.1	1	0.1
Cr	0.5	1	0.5
Cs	0.2	0.5	0.2 (0.1 ††)
Cu	-	1	1
Fe	0.01%	-	-
Ga	-	(5 †)	(5 †) (1 ††)
Ge	-	-	(0.5 ††)
Hf	0.2	0.5	0.2 (0.1 ††)
Hg	-	1-1000ppm	1-1000ppm
In	-	-	(0.1 ††)
Ir	2 ppb	2	2
Mo	2	5	2
Na	0.001%	-	-
Nb	-	(1 †)	(1 †) (0.2 ††)
Ni	50	1	1
Pb	-	(5 †)	(5 †)
Rb	10	20 (2 †)	10 (2 †) (1 ††)
S	-	0.001%	0.001%
Sb	0.1	0.2	0.1
Sc	0.01	0.1	0.01
Se	0.5	3	0.5
Sn	-	(5 †)	(5 †) (1 ††)
Sr	100	2	2
Ta	0.3	1	0.3 (0.01 ††)
Th	0.1	0.5	0.1 (0.05 ††)
Tl	-	-	(0.05 ††)
U	0.1	0.5	0.1 (0.01 ††)
V	-	5	5
W	1	3	1
Y	-	1	1
Zn	10	2	2
Zr	-	4	4 (1 ††)
La	0.05	0.5	0.05
Ce	1	3	1 (0.05 ††)
Pr	(0.01 †)	-	(0.01 ††)
Nd	1	5	1 (0.05 ††)
Sm	0.01	0.1	0.01
Eu	0.05	0.1	0.05 (0.005 ††)
Gd	(0.01 †)	-	(0.01 ††)
Tb	0.1	0.5	0.1 (0.01 ††)
Dy	(0.01 †)	-	(0.01 ††)
Ho	(0.01 †)	-	(0.01 ††)
Er	(0.01 †)	-	(0.01 ††)
Tm	(0.01 †)	-	(0.005 ††)
Yb	0.05	0.1	0.05 (0.01 ††)
Lu	0.01	0.05	0.01 (0.002 ††)
1-10 Samples	\$82.15	\$65.65	\$143.05
11+ Samples	\$77.45	\$59.60	\$131.25

Research designation: indicates lower detection limits.

Code 4A-research: Grades are determined by INAA. A minimum sample weight of 2 g is recommended. REE chondrite plots are provided at no charge.

- † Code 4A RES-MS: elements indicated by † are analyzed by fusion ICP-MS.

Code 4E: This package uses ICP and INAA technologies to completely characterize geological samples. This package is not suitable for analyzing concentrates or mill products. A minimum sample weight of 5 g is required.

Code 4E Add-Ons

- † Code 4E-XRF elements Ga, Pb, Sn, Nb and Rb are examined by Pressed Pellet XRF. This package can be added to Code 4E exploration or Code 4E research (please add 6 g of sample).
- †† Code 4E ICP-MS add-on option: can only be added to Code 4E research grade.

Code 4F: Other analyses associated with WRA (can be added to any Code 4 package). Add 1 gram for each option chosen (see page 16).

All elements are in ppm except where noted. Prices per sample.



APPENDIX IV

**List of Mining Cell-Claims
(Table 2)**

Coco List of Mining Cells-Claims Table 2

TENURE_NUM	PROPERTY	TITLE_TY_1	ISSUE_DATE	ANNIVERSARY	HOLDER
600807	Enable	Single Cell Mining Claim	20200725	20220725	(100) First Class Metals Canada Inc.
609712	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609713	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609714	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609715	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609716	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609717	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609718	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609719	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609720	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609721	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609722	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609723	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609724	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609725	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609726	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609727	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609728	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609729	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609730	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609731	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609732	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609733	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609734	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609735	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609736	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609737	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609738	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609739	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609740	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.
609741	Coco	Single Cell Mining Claim	20200820	20220820	(100) First Class Metals Canada Inc.

APPENDIX V

**Statement of Expenditures and
Expenditures per Claim
(Table 3)**

STATEMENT of EXPENDITURES

The following is a breakdown of expenditures related to the 2022 field program on the Coco Property.

Labour:

Preparation, field work, travel

Labour	\$ 12,750.00
--------	--------------

Prepare maps etc.

Drafting & digitizing	\$ 539.00
-----------------------	-----------

Report Writing

Report Writing	\$ 3,140.00
----------------	-------------

Associated Costs:

Meals & Groceries	\$ 748.39
-------------------	-----------

Field Supplies	\$ 53.47
----------------	----------

Ground Transportation (2868km x \$1.00/km)	\$ 2,868.00
--	-------------

Apartment Rental	\$ 182.00
------------------	-----------

Cabin Rental	\$ 1,049.65
--------------	-------------

ATV Rental	\$ 1,500.00
------------	-------------

House Rental	\$ 175.00
--------------	-----------

Analytical Costs:

AGAT Labs (46 rock-grab samples)	<u>\$ 2,095.80</u>
----------------------------------	--------------------

TOTAL EXPENDITURES	\$ 25,101.31
--------------------	---------------------

Table 3	Expenditure per Claim	
Cell No.	Rock Samples Collected per Cell	Expenditure per Cell
609715	3	\$ 1,637.00
609716	1	\$ 546.00
609717	1	\$ 546.00
609719	10	\$ 5,456.00
609721	5	\$ 2,728.00
609723	2	\$ 1,091.00
609724	6	\$ 3,274.00
609727	1	\$ 546.00
609728	4	\$ 2,183.00
609737	1	\$ 546.00
609739	8	\$ 4,365.00
609741	4	\$ 2,183.00
Total	46	\$ 25,101.00

APPENDIX VI

Daily Logs

(Table 4)

Coco 2022 Daily Log Table 4

Date	B. Maclachlan days	Field work	Activities	C. Robertson days	Field work	Activities	F. Lowndes days	Field work	Activities	D. Kakeeway days	Field work	Activities
June-15-2022							1	Prospecting	Drove ATV to the property, prospected near the western boundary	1	Prospecting	Drove ATV to the property, prospected near the western boundary
June-16-2022							1	Prospecting	Prospecting in the northeastern claim, collected 9 samples.	1	Prospecting	Prospecting in the northeastern claim, collected 9 samples.
June-17-2022							1	Prospecting	Prospecting in the northeastern claim, collected 4 samples.	1	Prospecting	Prospecting in the northeastern claim, collected 4 samples.
June-18-2022							1	Prospecting	Prospecting various claims, collected 6 samples.	1	Prospecting	Prospecting various claims, collected 6 samples.
June-19-2022							1	Prospecting	Light rain - heavy thunderstorms, left the bush due to rain.	1	Prospecting	Light rain - heavy thunderstorms, left the bush due to rain.
June-20-2022							1	Prospecting	Heavy thunderstorm, left the bush due to rain.	1	Prospecting	Heavy thunderstorm, left the bush due to rain.
June-21-2022							1	Prospecting	Prospecting various claims, collected 9 samples.	1	Prospecting	Prospecting various claims, collected 9 samples.
June-22-2022							1	Prospecting	Found a 2.5m wide vein, collected 17 samples.	1	Prospecting	Found a 2.5m wide vein, collected 17 samples.
September-08-2022	1	Prospecting	Drove most of the ATV trail, found people stuck and tried to help them out	1	Prospecting	Drove most of the ATV trail, found people stuck and tried to help them out						
September-09-2022	1	Travel	Travel to Thunder Bay	1	Travel	Travel to Thunder Bay						
Total Days	2			2			8			8		

APPENDIX VII

Map Sheets

482000 483000 484000

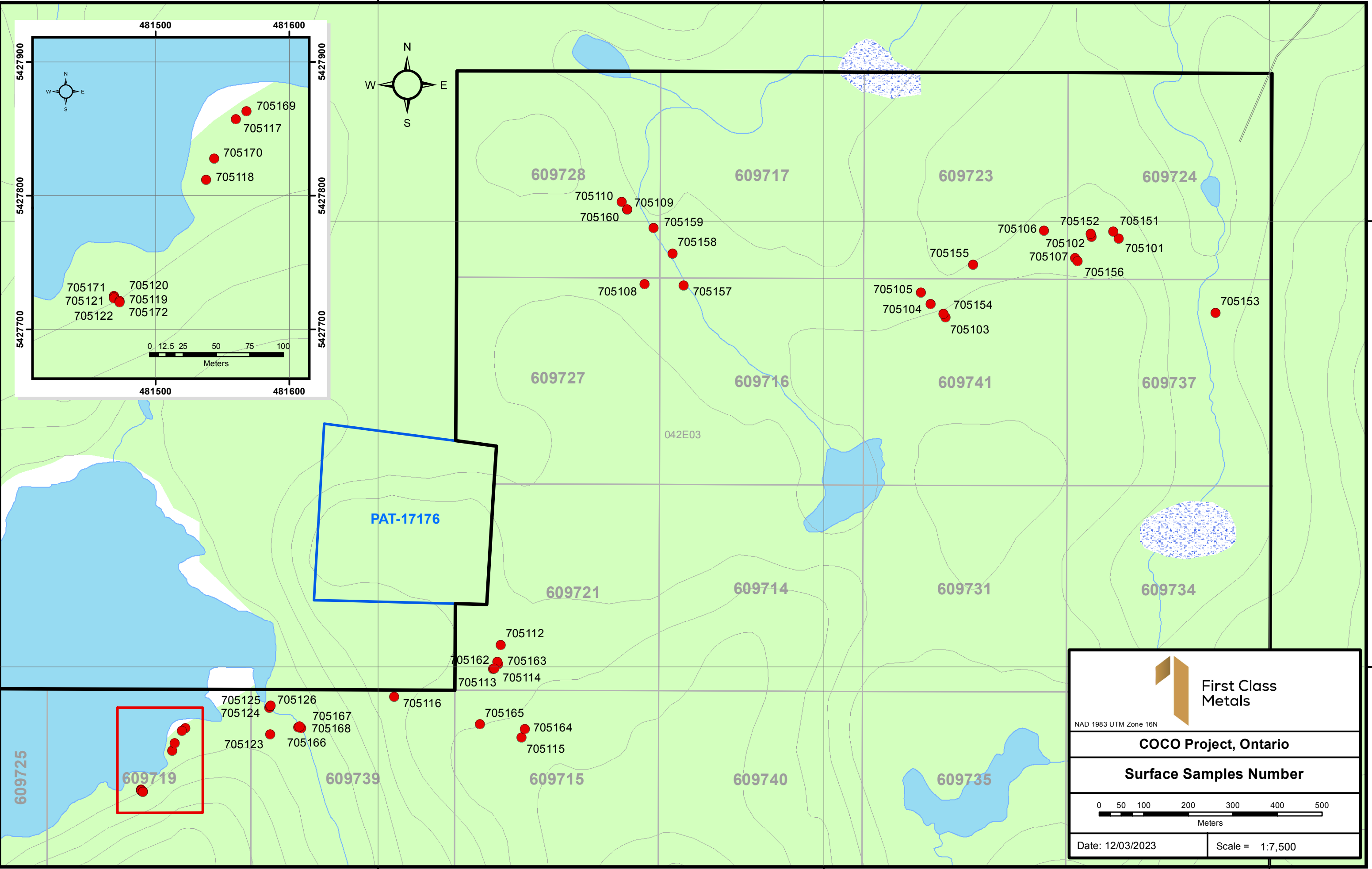
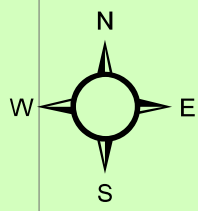
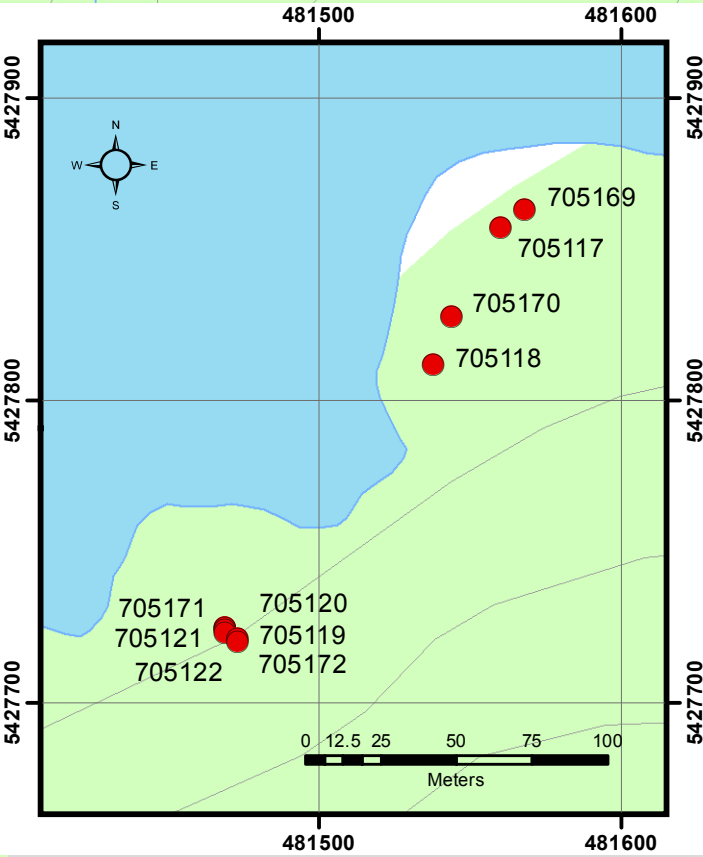
5429000


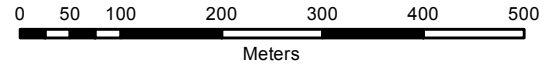
5429000

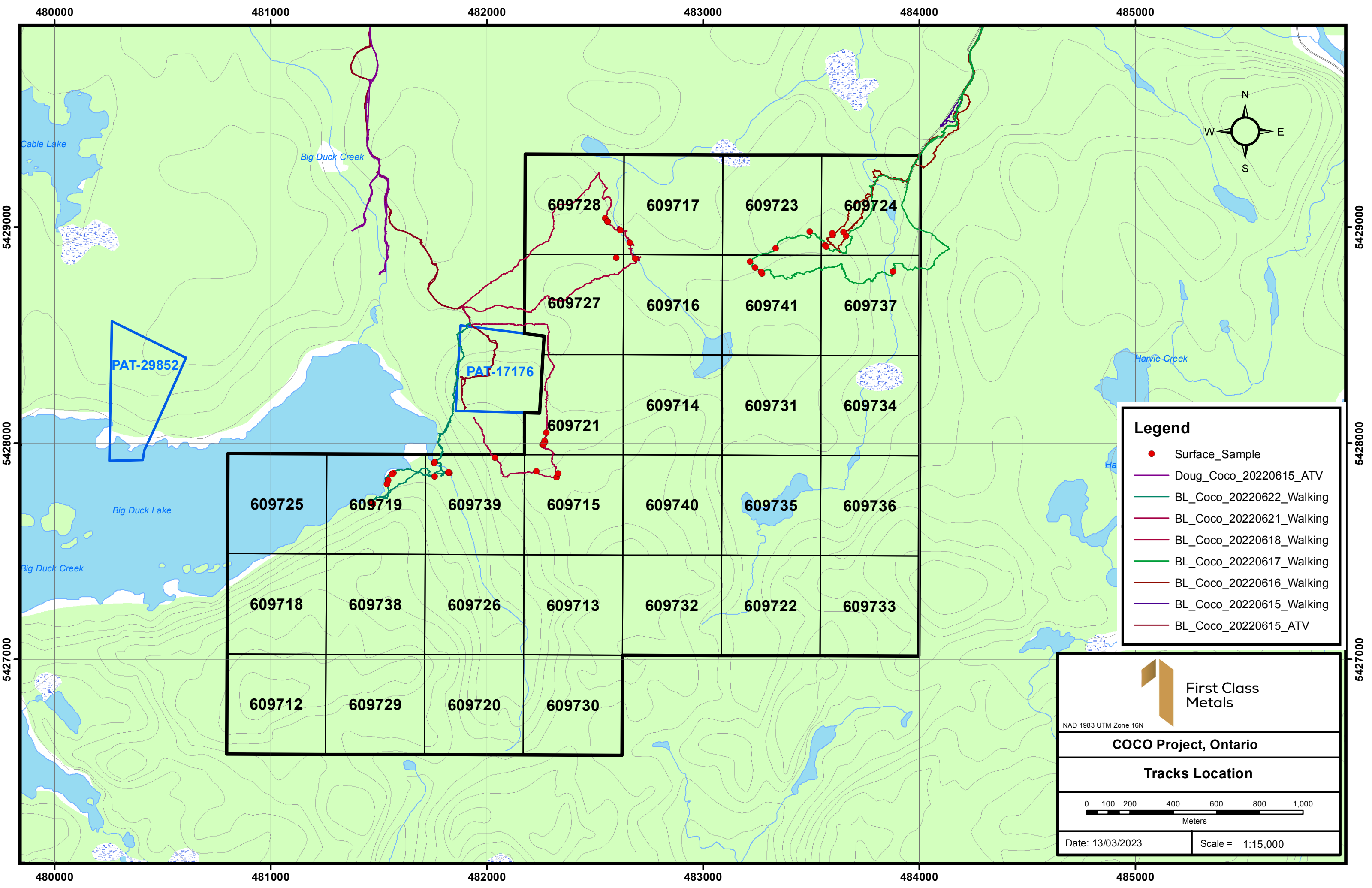
5428000

5428000

482000 483000 484000





First Class Metals
NAD 1983 UTM Zone 16N
COCO Project, Ontario
Surface Samples Number

 Date: 12/03/2023 Scale = 1:7,500



Legend

- Surface_Sample
- Doug_Coco_20220615_ATV
- BL_Coco_20220622_Walking
- BL_Coco_20220621_Walking
- BL_Coco_20220618_Walking
- BL_Coco_20220617_Walking
- BL_Coco_20220616_Walking
- BL_Coco_20220615_Walking
- BL_Coco_20220615_ATV



**First Class
Metals**

NAD 1983 UTM Zone 16N

COCO Project, Ontario

Tracks Location

0 100 200 400 600 800 1,000
Meters

Date: 13/03/2023 Scale = 1:15,000

			609728	609717	609723	609724
			609727	609716	609741	609737
			609721	609714	609731	609734
609725	609719	609739	609715	609740	609735	609736
609718	609738	609726	609713	609732	609722	609733
609712	609729	609720	609730			

Cell#	Grab & channel samples	46 samples @ \$45.56/sample (\$2095.80)	Other	Other2	POI's @ \$XXX (\$XXXX)	labour, travel, out of pocket \$23,005.51 / 46 samples = \$500.11/sample	Rounding	Rounding	
609715	3	\$ 136.68				\$ 1,500.33	\$ 1,637.01	\$ 1,637.00	
609716	1	\$ 45.56				\$ 500.11	\$ 545.67	\$ 546.00	
609717	1	\$ 45.56				\$ 500.11	\$ 545.67	\$ 546.00	
609719	10	\$ 455.60				\$ 5,001.10	\$ 5,456.70	\$ 5,457.00	
609721	5	\$ 227.80				\$ 2,500.55	\$ 2,728.35	\$ 2,728.00	
609723	2	\$ 91.12				\$ 1,000.22	\$ 1,091.34	\$ 1,091.00	
609724	6	\$ 273.36				\$ 3,000.66	\$ 3,274.02	\$ 3,274.00	
609727	1	\$ 45.56				\$ 500.11	\$ 545.67	\$ 546.00	
609728	4	\$ 182.24				\$ 2,000.44	\$ 2,182.68	\$ 2,183.00	
609737	1	\$ 45.56				\$ 500.11	\$ 545.67	\$ 546.00	
609739	8	\$ 364.48				\$ 4,000.88	\$ 4,365.36	\$ 4,365.00	
609741	4	\$ 182.24				\$ 2,000.44	\$ 2,182.68	\$ 2,183.00	
						\$ -	\$ -		
	46	\$ 2,095.76	\$ -		\$ -	\$ 23,005.06	\$ 25,100.82	25102.00	\$ 25,101.00

	Invoice 909	Invoice 936	Invoice 940	Invoice 1012
labour	\$ 12,750.00	\$ 9,950.00	\$ 2,800.00	
report	\$ 2,800.00			\$ 2,800.00
meals	\$ 748.39	\$ 675.59	\$ 72.80	
Mileage	\$ 2,868.00	\$ 2,318.00	\$ 550.00	
gas for ATV				
house rental	\$ 175.00		\$ 175.00	
apartment rental	\$ 182.00		\$ 182.00	
cabin rental	\$ 1,049.65	\$ 1,049.65		
motel				
postage				
supplies	\$ 53.47	\$ 53.47		
Tom	\$ 539.00	\$ 154.00	\$ 385.00	
Rocks	\$ 2,095.80			\$ 2,095.80
Courier				
Boat rental				
ATV	\$ 1,500.00	\$ 1,400.00	\$ 100.00	
Serge	\$ 340.00			\$ 340.00
	\$ 25,101.31	\$ 15,600.71	\$ 385.00	\$ 3,879.80
			\$ 5,235.80	

Table 3	Expenditure per Claim	
Cell No.	Rock Samples Collected per Cell	Expenditure per Cell
609715	3	\$ 1,637.00
609716	1	\$ 546.00
609717	1	\$ 546.00
609719	10	\$ 5,456.00
609721	5	\$ 2,728.00
609723	2	\$ 1,091.00
609724	6	\$ 3,274.00
609727	1	\$ 546.00
609728	4	\$ 2,183.00
609737	1	\$ 546.00
609739	8	\$ 4,365.00
609741	4	\$ 2,183.00
Total	46	\$ 25,101.00