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**SUMMARY EXPLORATION REPORT (2021)  
ON THE  
MARATHON, ONTARIO  
PROPERTIES**

NTS 42D/09, 42D/15, 42D/16  
Thunder Bay Mining Division  
Thunder Bay District  
Ontario, Canada

Date: September 17, 2021

**PREPARED FOR:**

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**Qualified Person:**

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**Project Number: 607.20.00**

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**DATE AND SIGNATURE**

The Report, “Summary Exploration Report (2021) on the Marathon, Ontario, Properties”, dated 17 September 2021 and prepared for Sienna Resources Inc., was authored by the following:

“signed and sealed original on file”

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John M. Siriunas (M.A.Sc., P.Eng.)  
Associate Geological Consultant  
Caracle Creek International Consulting Inc. (Canada)

Dated: September 17, 2021

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## SUMMARY EXPLORATION REPORT (2021)

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### 1 Introduction

At the request of Canadian public company Sienna Resources Inc. (“Sienna Resources”, the “Company”, or the “Issuer”), Caracle Creek International Consulting Inc. (“Caracle Creek” or the Consultant), a Canadian private company, prepared this summary report on the Marathon, Ontario, Properties (the “Project” or the “Properties”). The Project is located in the Province of Ontario (the “Province”), Canada, about 300 km east of the City of Thunder Bay or 400 km northwest of the City of Sault Ste. Marie via the Trans-Canada Highway #17 and targets parts of a large alkalic intrusion, the Coldwell Complex, for its exploration potential for Cu-PGE and Rare Earth mineralization.

The quality of information, conclusions, and recommendations contained herein is consistent with the level of effort involved in Caracle Creek’s services, determined using: i) information available at the time of Report preparation; ii) data supplied by outside sources; and iii) the assumptions, conditions, and qualifications set forth in the Report. The Report is intended for use by Sienna Resources, subject to the terms and conditions of its contract with Caracle Creek.

### 2 Property Description and Location

Sienna Resources holds title to 278 single cell mining claims in the vicinity of Marathon, ON, Thunder Bay Mining Division (Appendix 1). These claims are organized in four main contiguous blocks, namely the North (98 claims), South (45 claims), East (27 claims plus 2 others) and West (93 claims) Groups. A group of smaller claim blocks in the immediate vicinity of the Town of Marathon are referred to as the Marathon Group herein. The vast majority of claims (and mining leases) in the area, especially covering the eastern and northern parts of the Coldwell Complex, are held by Generation Mining Limited.

The **North Group** of claims are oriented in an east – west direction and are centred on NAD83 Zone 16N UTM 544160 E, 5445520 N. The claims are located in the Martinet Lake and Seeley Lake Areas.

The **West Group** of claims are oriented in a north – south direction with the main part of the northern area of the claims centred on NAD83 Zone 16N UTM 534130 E, 5411370 N. The claims are located in Grain and Coldwell Townships and the Seeley Lake Area.

The **South Group** of claims is located along the shoreline of Lake Superior with the western boundary being defined by the Red Sucker Point Provincial Nature Reserve. The claims are centred on NAD83 Zone 16N UTM 541125 E, 5403050 N. The claims are located in McCoy Township.

The **East Group** of claims is centred on NAD83 Zone 16N UTM 556280 E, 5398425 N and the claims are located in Pic and Cotte Townships.

The **Marathon Group** of claims comprise four separate blocks (or single claims) which include: 1) claims over portions of the local golf course and cross-country ski trails; 2) claims straddling the intersection of the Trans-Canada Highway and the access road (Peninsula Rd.) to the main business district (“MBD” or “downtown”) of Marathon; 3) a single claim that covers parts of the local hospital and Canadian Tire retail store in said MBD; and 4) a single claim covering a hilltop east of Carden Cove Beach. The claims are located in Pic and McCoy Townships.

### 3 Topography and Access

The area is moderately rugged with abundant hills and cliffs along deep lineaments. Lake Superior has an average elevation of 183 m AMSL and areas of the claims are at elevations of up to 425 m AMSL. The highest elevations in the area are over 500 m AMSL within a 6 km linear distance from Lake Superior.

The Pic River and Little Pic River form the (approximate) east and west respective boundaries for the overall area of interest. Both these waterways can be considered to be navigable though fluctuations in their water levels and the presence of rapids (especially on the Little Pic) will greatly affect the viability of these rivers as means of access to the vicinity of the claim areas.

The **North Group** is currently accessible only by helicopter or by float plane to some of the larger lakes within the Group’s area (e.g., Martinet Lake, Willie Lake, Jim Lake). A private camp/cottage was observed on Jim Lake. The western end of the Group is about 3.5 km east of the Little Pic River while the eastern end is about 1 km west of the Pic River.

The **West Group** lies to the west of the Culvert Creek Road and to the east of the Little Pic River. The Culvert Creek Road departs the Trans-Canada Highway about 1.5 km east of Coldwell, ON, near Silver Falls on Mink Creek and provides access to certain Cu-PGE occurrences in the Coldwell Complex including Geordie Lake and the occurrences northwest of Coubran Lake. The best option for access to the West Group is by helicopter as there are no known trails or significant waterways into the area. There are no lakes of sufficient size for float plane access. Traverses on foot into the claims from either the Culvert Creek Road or the Little Pic River face arduous topography.

The **East Group** is also awkward for access and is probably best accessed by helicopter; lakes in the eastern part are too small for float plane access and Spruce Creek which bisects the Group from northeast to southwest is probably too narrow and/or shallow for effective canoe access. The southern edge of the group is about 2 km north of the hydro-electric powerline right-of-way near the confluence of Swede Creek with the Black River, north of the Trans-Canada Highway.

The **South Group** has some of the best access in the area with the Trans-Canada Highway crossing the northern edge of the Group, the CP Rail line effectively traversing the central parts of the Group and Lake Superior lying along the southern edge of the claims. The hydro-electric powerline also traverses the central part of the Group but presents a much more challenging avenue of access vis-à-vis the topography it can present. The opportunity for shoreline geological mapping along the coast of Lake Superior is not without its own challenges given the physical (and potentially dangerous) conditions presented by such a large lake and the rugged topography in some areas along the shoreline. Once again, the ability of a helicopter to access various locations along the shoreline was found to be very effective (and totally apart from the intrinsic scenic value). The southeast corner of the Group is accessible by way of the Carden Cove Beach Road from the Marathon townsite.

The various claims of the **Marathon Group** have relatively easy access via the Trans-Canada Highway and Peninsula Rd. and various recreational trails used by the Marathon townsfolk. The single claim 570408 was accessed by helicopter (albeit by a toe-in maneuver) due to the topography of said claim.

For the purposes of this project, helicopter charters were provided by Wisk Air Helicopters from their base at Thunder Bay, ON (CYQT). Bell 206 Long Rangers (CF-KAW and CF-BHM) were provided for the charters. The ferry time from Thunder Bay to Marathon (CYSP) is approximately 1.5 hrs one way but, of course, this is totally dependent on weather conditions. Wilderness Helicopters do have a base at Marathon, but at the time of this field work, no machines were available for local charters due to forest-fire fighting commitments for all their aircraft in northwestern Ontario. Card-lock fuel servicing for aviation fuels is available at the Marathon airport.

## 4 General Geology

Alkalic rock intrusions occur in an area that extends from the north shore of Lake Superior in a north to north-northeast direction for approximately 140 km. The major rock types include alkalic rocks, carbonatites and diatreme structures; the (Port) Coldwell (Alkaline) Complex is the largest of these intrusions.

Claims in the South, West and Marathon Groups are underlain by rocks of the Proterozoic-age Coldwell Complex while those in the North and East Groups are underlain by Archean-age, predominantly intrusive, rocks (Appendix 2 - Figure 1).

The Complex intruded the Archean-age Schreiber-Hemlo greenstone belt (part of the Wawa Subprovince of the Canadian Shield) along the northern edge of the North American Midcontinent rift (Appendix 2 - Figure 2).

The Midcontinent Rift as summarized by Sage and Watkinson (1995) is represented by a horseshoe-shaped gravity and aeromagnetic anomaly open to the south that is exposed in the

Lake Superior region and lies east of the Kapuskasing Structural Zone and northwest of the Grenville Front Tectonic Zone. The western limb of this gravity and aeromagnetic anomaly strikes southwest into Kansas and possibly as far south as west Texas and eastern New Mexico. The eastern arm of the Midcontinent Rift strikes southeast into southern Michigan and possibly extends into Ohio and Kentucky. The rift has been interpreted to be a triple junction formed by a rising mantle plume but the model of decompression melting over an upwelling mantle plume in an extensional lithosphere environment is the current favoured model; that large volumes of magma of dominantly tholeiitic composition extruded over a short period is consistent with the mantle plume model.

The geology of the Coldwell Complex has been summarized by Good *et al.* (2015) as follows:

The Complex is subcircular with a diameter of 25 km and a surface area of 580 km<sup>2</sup>. The Complex is believed to have intruded over a relatively short period of time near the beginning of the main stage of Midcontinent rift magmatism that occurred between 1108 and 1094 Ma. The Complex has been described by Mitchell and Platt (1977) as comprising three superimposed intrusive centres (Appendix 2 – Figure 3). Centre I intrusions include the Eastern gabbro, Western gabbro, amphibole quartz syenite, iron-rich augite syenite, monzodiorite, and mafic volcanic and subvolcanic rocks. These latter volcanic rocks occur as, or are typically mapped as, roof pendants. Rocks of Centre II include amphibole nepheline syenite and alkaline gabbro and rocks of Centre III include quartz syenite and amphibole quartz syenite. The majority of rocks in the area are proposed to have intruded as subhorizontal sheetlike bodies at a shallow, subvolcanic depth, and were controlled to some extent by faulting during cauldron subsidence.

## 5 Deposit Types

**Cu-PGE mineralization** is found in several important occurrences within the Coldwell Complex. The most important of these is the Marathon deposit currently under development by Generation Mining Limited (TSX:GENM) and its partner Stillwater Canada Inc. (Sibanye Gold Limited, a.k.a. Sibanye-Stillwater). The deposit has been known for many years, first being discovered by Anaconda Copper in the early 1960s and later being explored and evaluated by PolyMet Mining Corp. (and its predecessor Fleck Resources Ltd.) amongst others. Current mineral resource estimates sit at 203 Mt (measured and indicated) grading 0.55 g Pd/t, 0.20% Cu, 0.07 g Au/t, 0.19 g Pt/t and 1.62 g Ag/t (Gignac *et al.*, 2021). A mineral reserve has also been calculated. Brzozowski *et al.* (2020) consider the mineralization at the Marathon deposit to be of the conduit-type (Ni)-Cu-PGE deposit hosted by distinct separate gabbroic intrusions within the Centre I Eastern Gabbro (the Two Ducks Lake Intrusion). Other deposits related to the Eastern Gabbro and located northwest of the Marathon deposit include Sally Lake (25 Mt indicated, grading 0.35 g Pd/t, 0.17% Cu, 0.07 g Au/t, 0.2 g Pt/t and 0.7 g Ag/t; Gignac *et al.*, 2021), Four Dams, Area 41 and Redstone.

The Geordie Lake deposit (17 Mt indicated, grading 0.56 g Pd/t, 0.35% Cu, 0.05 g Au/t, 0.04 g Pt/t and 2.4 g Ag/t; *ibid.*) is a magmatic sulphide deposit associated with a tholeiitic gabbroic body (“the Geordie Lake intrusion”) that intrudes Centre I (eastern) syenites. This intrusion is located along the Red Sucker fault zone, a major ring fault that marks the discontinuity between Centre I syenites and the nepheline syenites and alkaline gabbros of Centre II (Mulja and Mitchell, 1991). The Geordie Lake intrusion is distinct from the Eastern Gabbro.

**Rare earth (and ancillary element, e.g., Nb, Th, Y, Zr) pegmatites**, while not well-explored, are known to be present within the Coldwell Complex. Walker *et al.* (1993a) report that the pegmatites appear to be associated with three intrusive events: i) feldspar porphyritic amphibole syenite found between the iron-rich augite syenite and the basaltic roof pendant; ii) quartz-undersaturated natrolite-bearing syenite along faults that may be related to cauldron subsidence; and iii) quartz syenite pegmatites intrusive into the Eastern Gabbro. The pegmatites vary in size from small, irregular-shaped patches, to well developed dykes up to 4 m wide with sharp contacts. Minerals often grow from the margin inward, producing acicular amphiboles, feldspars and pyroxenes up to 25 cm long and 5 cm wide. Based on the classification scheme of Cerny (1991), all known pegmatite types within the Coldwell Complex are part of the Rare Element Class, Niobium, Yttrium, Fluorine (NYF) Family and the Rare Earth Type. Walker *et al.* (1993) note that the pegmatites of the Coldwell Complex do not match the classification sub-types discussed by Cerny; they define the Coldwell Pegmatite sub-types to be: i) Nb – Zr - Rare Earth pegmatites; ii) Rare Earth - Th pegmatites; and iii) Nb – Zr - Rare Earth, quartz-absent pegmatites. Type occurrences in the area have variously reported values of up to 1.35% Nb<sub>2</sub>O<sub>5</sub>, 3.0% ThO<sub>2</sub>, 1.2% Ce<sub>2</sub>O<sub>5</sub> and 2.44% ZrO<sub>2</sub>. Sage (1982) in commentary related to the nearby Dead Horse Creek diatreme notes that syenite aplite dykes that cut that diatreme, and also the rocks of the Coldwell Complex, are usually radioactive and have been prospected for their uranium and niobium content.

## 6 Exploration – Current

Field work was directed by Mr. Tim Tuba of Sienna Resources whose recommendations and provision of information were instrumental in the execution of this Project. Dr. L. Scott Jobin-Bevans of Caracle Creek provided the author with additional background technical information and recommendations for field activities.

The understood priorities for the field work were to prospect the claim groups for gabbroic rocks with Cu-PGE potential and to also prospect for pegmatitic syenites for their rare earth potential. The field work was primarily guided by OGS Preliminary Geology Maps P3232 Port Coldwell Complex (West Half) and P3233 Port Coldwell Complex (East Half) (Walker *et al.*, 1993b,c). Rock descriptions in the field use the legend taken from these maps (Appendix 3). Other geological information was provided by Puskas (1967). Geological information for



the North Group was derived from Milne (1967) and Lassila (1983), while that for the East Group was derived from Muir and Barnett (1978).

Field work was carried out between the 16<sup>th</sup> and 27<sup>th</sup> of August 2021. The author was assisted in the field by Mr. Adam (“AJ”) Gilbert. Helicopter charters were used on August 23<sup>rd</sup> and 27<sup>th</sup> to access the more remote claim areas of the West Group, North Group and East Group, areas along the shoreline of Lake Superior (South Group) and poorly accessible high ground (Marathon Group).

Traverse maps have been prepared from collected GPS tracks, either from a handheld Magellan Explorist 610, the iOS GPS Tracks Pro application or a Toughbook CF-31 with integrated GPS. Horizontal location accuracy is estimated to be about +/- 5 m on all occasions.

The traverses have been plotted on a series of slides with a Google Earth base (Appendix 4).

A list of the samples collected and archived during this field work is available in Appendix 5.

Appendix 6 presents a series of photographs that document some of the observations and areas visited in the field.

The two claims separate from the main contiguous block of claims in the East Group (Cotte Township claims 570332 and 570334) were not able to be visited during the course of the field work.

## **7 Interpretation and Conclusions**

Topography is a great obstacle to the timely exploration of the claims; with the exception of the South and Marathon Groups of claims, access is best served by helicopter charters.

Notwithstanding the physiography of the region, the author has found that the previous geological mapping undertaken in the region, where directly examined during the course of this field work, is accurate per the published reports of Walker *et al.* (1993a, b, c), Milne (1967) and Muir and Barnett (1978). While those authors have had the advantage of time (in the field) and other resources (petrographic work and geochemical analyses *etc.*) to produce their final products, there is no doubt that their observations were consistent with what the author observed in the areas examined in the field during the relatively short duration of this project.

In the few gabbroic rocks observed on the Sienna Resources claim groups, mainly within the South Group and in a select few locations on the West Group, there was no observed indication of any sulphide mineralization. The gabbroic rocks observed in the field were believed to be part of with the Western Gabbro package and were not related to either the Eastern Gabbro / Two Ducks Lake Intrusion or the distinct Geordie Lake Intrusion.

There were numerous occurrences of pegmatitic phases observed within the various syenitic rock types of the Coldwell Complex including preferential occurrences at or near the contact with basaltic “roof pendants”. There were no observations made of the relatively “exotic” mineralogy typical of the mineralized pegmatites in the region as reported by Walker *et al.* (1993). The size and/or observed extent of these pegmatitic phases was always limited, nothing like the western natrolite pegmatite reported by Walker *et al.* (1993a) that is 2 km long and 200 m wide. Narrow syenitic aplite intrusives were noted to be almost equally abundant as the pegmatitic phases throughout the areas visited.

The North Group and East Group of claims were observed to be underlain mainly by the granitic rocks of the Jim Lake Batholith (granitic gneiss per Milne, 1967) and the Pic Batholith (monzonite per Muir and Barnett, 1978) respectively.

## 8 Recommendations

The author found no definitive indications of the targeted mineralization types, but the samples collected in the field (Appendix 5) may provide useful information if analyzed. It is suggested that all samples be analyzed for an “ultratrace” suite of around 60 elements after a “near total” 4-acid digestion plus a “3E” suite of elements (Pd, Pt, Au) after a fire assay digestion; these analyses would provide a geochemical characterization of the various rock types that were deemed to be suitable for collection in the field during the current investigations. These suggested packages could provide geochemical information pertinent to further exploration activities for Cu-Pd, rare earths, and perhaps, other styles and types of mineralization in the Marathon area.

Given the difficulty of access to some areas, especially in the West and North Groups, if further exploration is deemed to be worthy, consideration for remote camps from which pace-and-compass traversing and prospecting over short periods of time should be given. Even in the South Group, which does have relatively good access for the area, the use of helicopter charters would provide timely access to the most rugged areas of topography.

## 9 References

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P.3233, scale 1:20,000.

**APPENDIX 1 – Claims List**

[6 pages]

Claim Group	Tenure ID	Township / Area	Tenure Type	Anniversary Date	Tenure Status	Tenure Percentage	Work Required	Work Applied	Reserve/Credit
EAST	570320	PIC	SCMC*	2022-01-22	Active	100	400	0	0
EAST	570321	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570322	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570323	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570324	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570325	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570326	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570327	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570328	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570329	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570331	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570332	COTTE	SCMC	2022-01-22	Active	100	400	0	0
EAST	570334	COTTE	SCMC	2022-01-22	Active	100	400	0	0
EAST	570335	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570336	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570337	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570338	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570340	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570341	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570342	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570343	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570345	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570346	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570347	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570349	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570350	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570351	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570353	PIC	SCMC	2022-01-22	Active	100	400	0	0
EAST	570354	PIC	SCMC	2022-01-22	Active	100	400	0	0
MARATHON	570408	MCCOY	SCMC	2022-01-22	Active	100	400	0	0
MARATHON	570409	PIC	SCMC	2022-01-22	Active	100	400	0	0
MARATHON	570410	PIC	SCMC	2022-01-22	Active	100	400	0	0
MARATHON	570414	PIC	SCMC	2022-01-22	Active	100	400	0	0
MARATHON	570421	PIC	SCMC	2022-01-22	Active	100	400	0	0
MARATHON	570430	PIC	SCMC	2022-01-22	Active	100	400	0	0
MARATHON	570431	PIC	SCMC	2022-01-22	Active	100	400	0	0
MARATHON	570432	PIC	SCMC	2022-01-22	Active	100	400	0	0
MARATHON	571684	PIC	SCMC	2022-01-27	Active	100	400	0	0
MARATHON	571685	PIC	SCMC	2022-01-27	Active	100	400	0	0
MARATHON	571686	PIC	SCMC	2022-01-27	Active	100	400	0	0
MARATHON	571687	PIC	SCMC	2022-01-27	Active	100	400	0	0
MARATHON	571688	PIC	SCMC	2022-01-27	Active	100	400	0	0
NORTH	570272	MARTINET LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570273	MARTINET LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570274	MARTINET LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570275	MARTINET LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570276	MARTINET LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570277	MARTINET LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570278	MARTINET LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570279	MARTINET LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570280	MARTINET LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570281	MARTINET LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0



Claim Group	Tenure ID	Township / Area	Tenure Type	Anniversary Date	Tenure Status	Tenure Percentage	Work Required	Work Applied	Reserve/Credit
NORTH	570389	SEELEY LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570370	SEELEY LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570371	MARTINET LAKE AREA,SEELEY LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570372	MARTINET LAKE AREA,SEELEY LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570373	MARTINET LAKE AREA,SEELEY LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570374	SEELEY LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
NORTH	570375	SEELEY LAKE AREA	SCMC	2022-01-22	Active	100	400	0	0
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Claim Group	Tenure ID	Township / Area	Tenure Type	Anniversary Date	Tenure Status	Tenure Percentage	Work Required	Work Applied	Reserve/Credit
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Claim Group	Tenure ID	Township / Area	Tenure Type	Anniversary Date	Tenure Status	Tenure Percentage	Work Required	Work Applied	Reserve/Credit
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WEST	571709	GRAIN	SCMC	2022-01-27	Active	100	400	0	0
WEST	571710	GRAIN	SCMC	2022-01-27	Active	100	400	0	0
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Claim Group	Tenure ID	Township / Area	Tenure Type	Anniversary Date	Tenure Status	Tenure Percentage	Work Required	Work Applied	Reserve/Credit
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WEST	571716	GRAIN	SCMC	2022-01-27	Active	100	400	0	0
WEST	571717	GRAIN	SCMC	2022-01-27	Active	100	400	0	0
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WEST	571722	GRAIN	SCMC	2022-01-27	Active	100	400	0	0
WEST	571723	GRAIN	SCMC	2022-01-27	Active	100	400	0	0
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\* Single Cell Mining Claim

**APPENDIX 2 – Report Figures**

[2 pages]

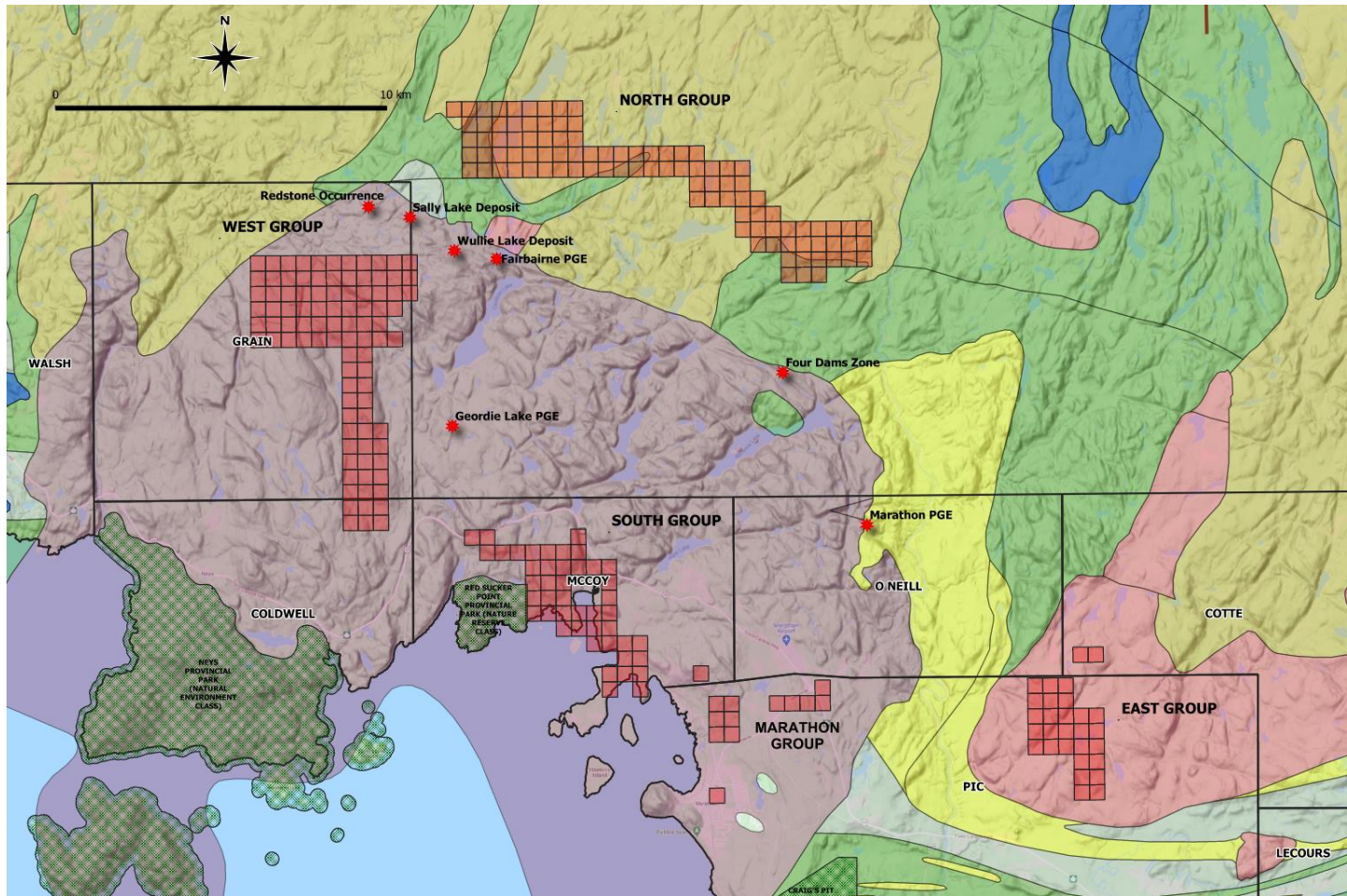


Figure 1: Claim blocks and general geology

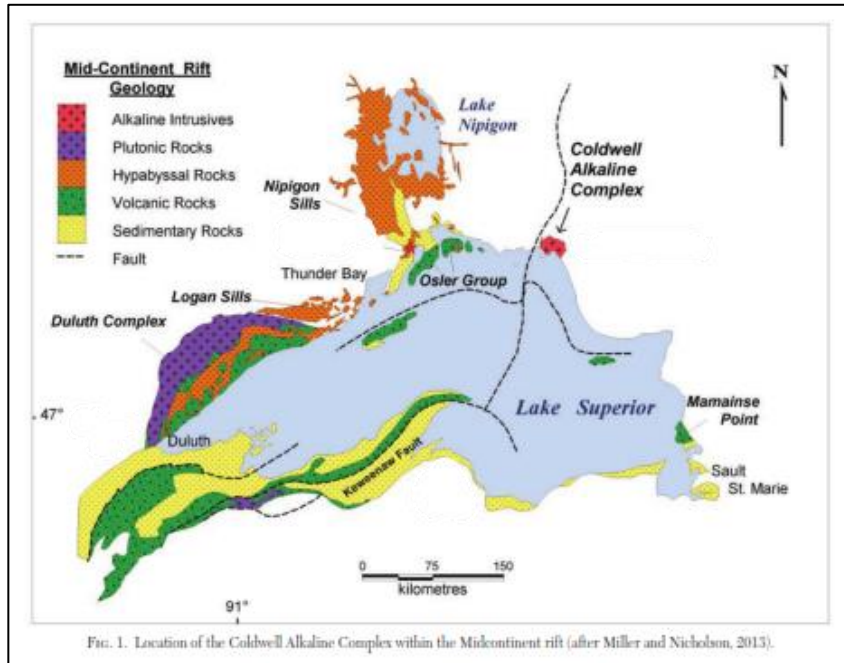


Figure 2. The Midcontinent Rift.

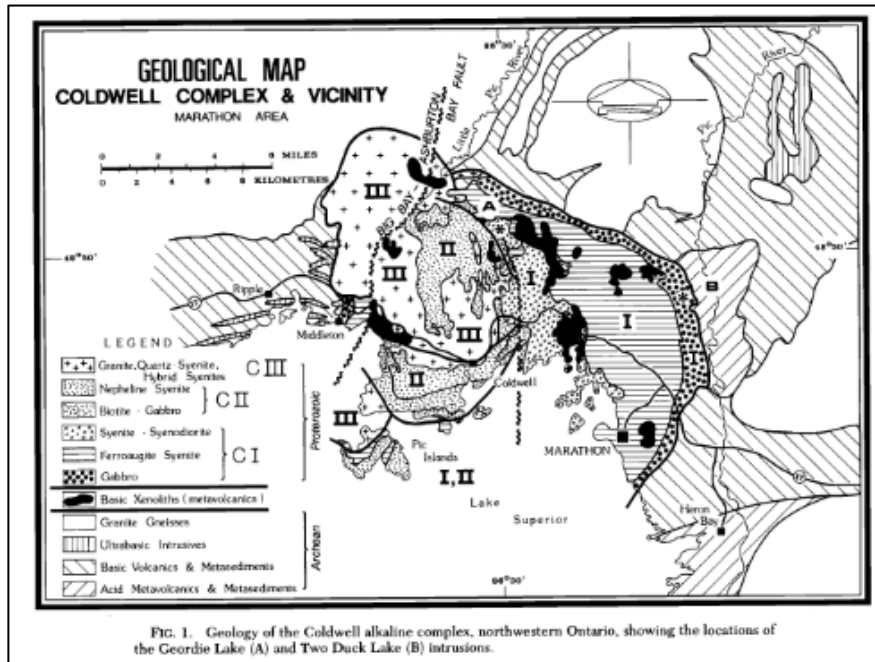


Figure 3. Coldwell Complex Volcanic Centres.

**APPENDIX 3 – Geological Legend from Walker *et al.* (1993b) with Intrusive Centres (CI, CII and CIII)  
estimated from Mulja and Mitchell (1991)**

[1 page]

# LEGEND

## PHANEROZOIC

### CENOZOIC

#### QUATERNARY

#### PLEISTOCENE AND RECENT

Fluvial silt and sand, and till

UNCONFORMITY

## PRECAMBRIAN

### PROTEROZOIC

#### MESOPROTEROZOIC (0.9 to 1.6 Ga)

#### COLDWELL ALKALIC COMPLEX (1.1 Ga)

#### 16 Lamprophyre Dikes

- 16a Pyroxene-phyric lamprophyre
- 16b Amphibole-phyric lamprophyre
- 16c Biotite-phyric lamprophyre
- 16d Lamprophyre dikes withmiarolitic cavities
- 16e Lamprophyre with feldspar xenocrysts
- 16f Lamprophyre with quartz xenocrysts
- 16g Olivine-phyric lamprophyre

#### 15 Amphibole Quartz Syenite

- 15a Quartz syenite (amphibole < 10%)
- 15b Amphibole quartz syenite
- 15c Fine-grained amphibole quartz syenite
- 15d Coarse-grained amphibole quartz syenite
- 15e Fayalite-amphibole quartz syenite
- 15f Feldspar-phyric quartz syenite
- 15g Dikes of amphibole quartz syenite
- 15h Amphibole quartz syenite with pegmatitic patches and veins
- 15i Layered amphibole quartz syenite

#### 14 Amphibole Natrolite-Nepheline Syenite

- 14a Amphibole natrolite-nepheline syenite
- 14b Fine- to medium-grained amphibole natrolite-nepheline syenite
- 14c Feldspar phyric amphibole natrolite-nepheline syenite
- 14d Amphibole natrolite-nepheline syenite pegmatites
- 14e Amphibole natrolite-nepheline syenite with biotite ovoids
- 14f Dikes of amphibole natrolite-nepheline syenite
- 14g Layered amphibole natrolite-nepheline syenite
- 14h Natrolite-nepheline syenite with pegmatitic patches and veins
- 14i Amphibole natrolite-nepheline syenite with near-equant amphibole

#### 13 Nepheline Syenite

- 13a Amphibole nepheline syenite
- 13b Biotite amphibole nepheline syenite
- 13c Biotite-amphibole syenite (nepheline < 10%)
- 13d Fayalite amphibole nepheline syenite
- 13e Layered amphibole nepheline syenite
- 13f Nepheline syenite with pegmatitic patches and veins
- 13g Amphibole nepheline syenite with near-equant amphibole
- 13h Nepheline syenite (amphibole < 10%)
- 13i Feldspar-phyric nepheline syenite

#### 12 Monzodiorite Dikes

#### 11 Amphibole Syenite

- 11a Amphibole syenite
- 11b Fine-grained amphibole syenite
- 11c Amphibole-quartz syenite pegmatites
- 11d Feldspar-phyric amphibole syenite
- 11e Dikes of amphibole syenite
- 11f Amphibole syenite with quartz
- 11g Amphibole syenite with pegmatitic patches and veins
- 11h Amphibole syenite with biotite

#### 10 Iron-Rich Augite Syenite

- 10a Augite syenite
- 10b Fayalite augite syenite
- 10c Layered augite syenite
- 10d Augite syenite with pegmatitic patches and veins
- 10e Augite syenite with quartz
- 10f Augite syenite pegmatites
- 10g Feldspar phyric augite syenite
- 10h Augite syenite with biotite

#### 9 Recrystallized Amphibole Quartz Syenite

- 9a Recrystallized amphibole quartz syenite
- 9b Feldspar phyric recrystallized amphibole quartz syenite
- 9c Fine-grained alkali feldspar granite
- 9d Recrystallized amphibole quartz syenite pegmatite patches and veins

CI

#### 8 Alkaline Gabbro

- 8a Gabbro
- 8b Biotite gabbro
- 8c Olivine gabbro
- 8d Biotite-olivine gabbro
- 8e Enclave-rich biotite-olivine gabbro
- 8f Fine-grained gabbro
- 8g Olivine melagabbro
- 8h Wehrlite
- 8i Olivine phyric gabbroic rocks
- 8j Layered gabbroic rocks
- 8k Coarse-grained to pegmatitic gabbro

CII

#### 7 Gabbro

- 7a Fine-grained gabbro
- 7b Medium-grained gabbro
- 7c Coarse-grained gabbro
- 7d Coarse-grained gabbro with pegmatitic patches
- 7e Feldspar-phyric gabbro
- 7f Leucogabbro (CI 10 to 35)
- 7g Monzodiorite, quartz diorite, quartz monzodiorite
- 7h Layered gabbroic rocks
- 7i Anorthosite inclusions
- 7j Gabbro with ocelli

CI

#### 6 Rheomorphic Breccia

INTRUSIVE CONTACT

#### 5 Mafic Volcanic, Subvolcanic and Hypabyssal Intrusive Rocks

- 5a Ocellar basalt
- 5b Fine-grained to aphanitic basalt
- 5c Fragmental basalt
- 5d Diabase
- 5e Feldspar-phyric mafic rocks
- 5f Layered mafic rocks
- 5h Pyroxene-phyric phenocrysts mafic rocks

CI

## ARCHEAN

### FELSIC TO INTERMEDIATE PLUTONIC ROCKS

#### 4 Massive to Foliated Granitoid Rocks

- 4a Foliated tonalite, granodiorite
- 4b Quartz-feldspar porphyry
- 4c Granodiorite, granite

INTRUSIVE CONTACT

### SUPRACRUSTAL ROCKS

#### 3 Metasediments

- 3a Argillite/slate
- 3b Biotite schist
- 3c Wacke
- 3d Conglomerate

#### 2 Intermediate to Felsic Metavolcanic Rocks

- 2a Flows
- 2b Pyroclastics

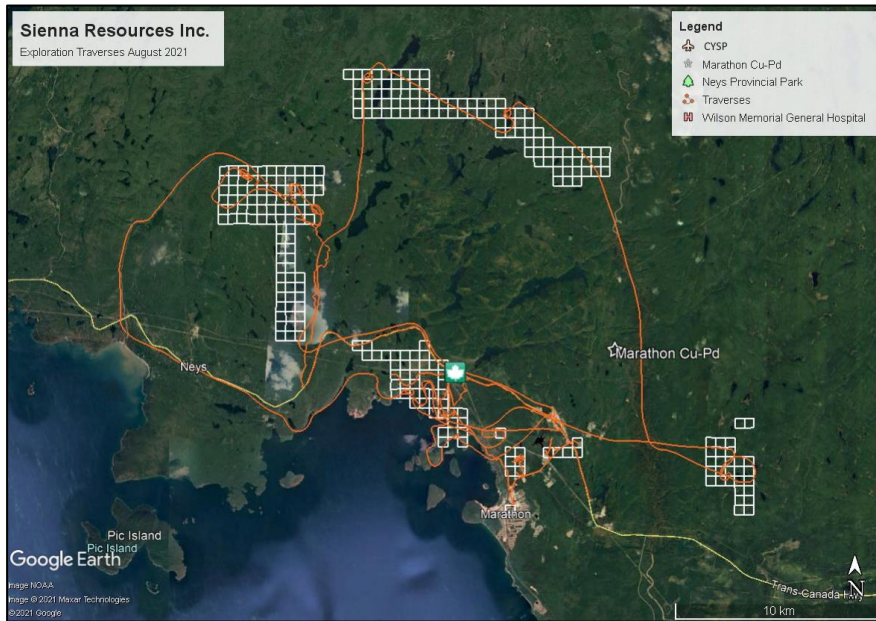
#### 1 Mafic Metavolcanic Rocks

- 1a Flows
- 1b Pyroclastics

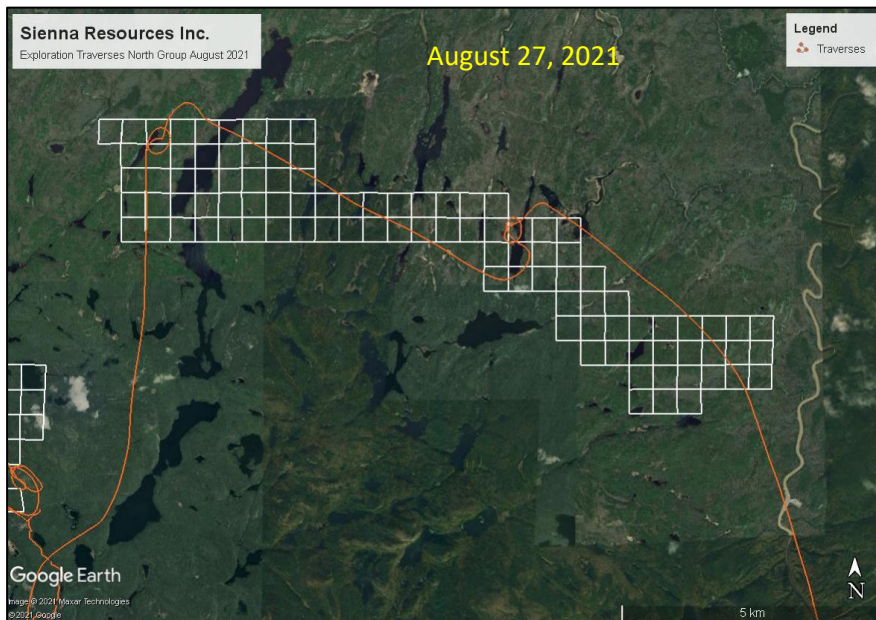


**APPENDIX 4 – Traverse Maps**

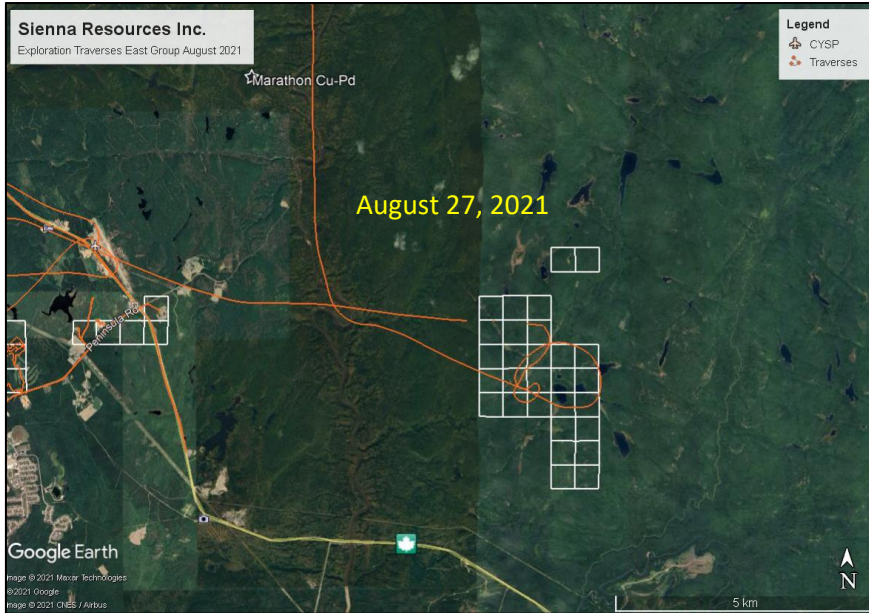
[3 pages]



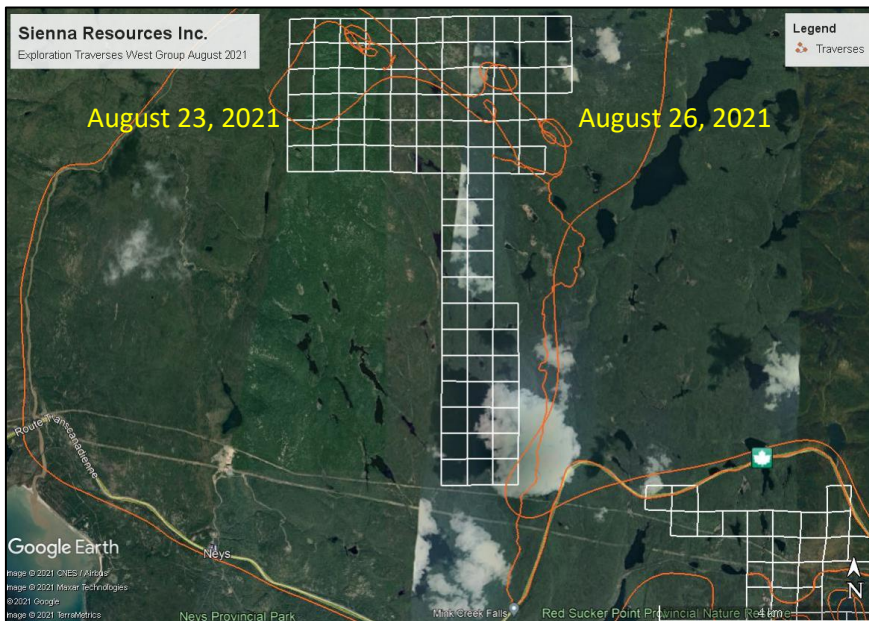
Traverse Slide 1. Record of all the main traverses carried out over the Sienna Resources Inc. claims and vicinity including access routes.



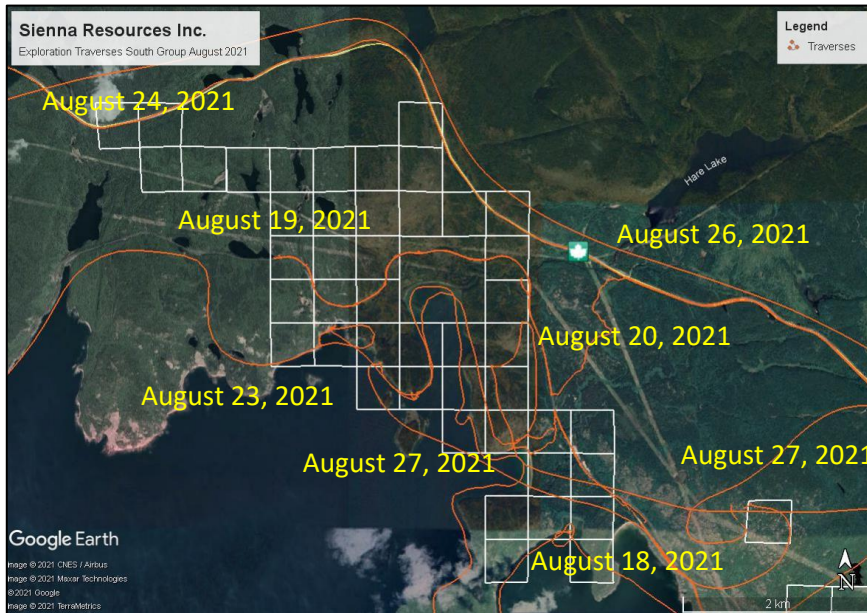
Traverse Slide 2. Helicopter access to preferential landing zones in the North Group.



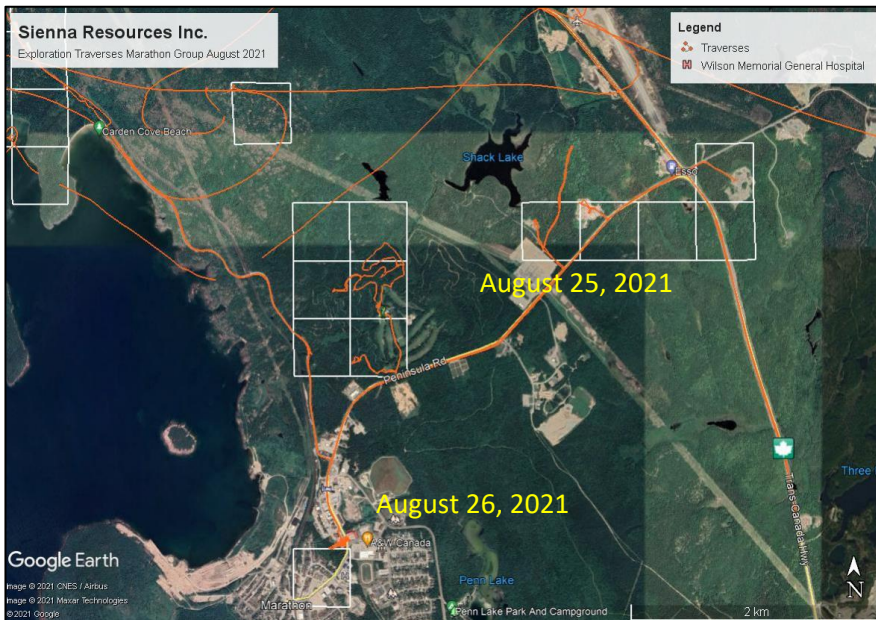
Traverse Slide 3. Helicopter access to preferential landing zones in the East Group.



Traverse Slide 4. Helicopter access to preferential landing zones in the West Group and road access and prospecting traverse via the Culvert Creek Road.



Traverse Slide 5. Shows various routes of access into the South Group including shoreline stops via helicopter.



Traverse Slide 6. Access to the claims in the Marathon Group.

**APPENDIX 5 – Sample List**

[1 page]

54 Samples none sent out for assays.

	<b>UTM NAD83 Zone 16</b>		
<b>Sample No.</b>	<b>Easting</b>	<b>Northing</b>	<b>Rock</b>
688203	535308	5410273	Peg with QZ
688204	535308	5410273	14 with 5 xenos
688205	535724	5410132	15
688206	535893	5410095	15
688207	533333	5411844	Peg boulder
688208	533485	5411974	7 with Peg
688209	533493	5412000	7j
688210	533496	5412009	14
688211	533510	5412041	7 / 8b?
688212	532948	5412238	14
688213	535155	5411628	11
688214	543640	5399618	11
688215	543700	5399513	11 Peg
688216	543694	5399571	11 Peg
688217	542643	5402534	5
688218	540780	5402307	7
688219	540685	5402312	7
688220	540431	5402470	7
688221	540102	5402828	7
688222	542993	5401009	11
688223	542789	5400918	11
688224	541739	5404236	5a
688225	541804	5404099	10
688226	541804	5404099	10
688227	541890	5403867	10 Peg
688228	541890	5403867	10 and 5
688229	541905	5403836	QZ Peg
688230	538410	5404240	QZ Vein
688231	543715	5399438	11 Peg
688232	540598	5402071	7
688233	540491	5401875	7
688234	540635	5402105	7
688235	542306	5401684	11
688236	541701	5404326	5 with Peg
688237	541716	5404281	5 with Peg
688238	541730	5404254	5 with Aplite
688239	546162	5398563	10
688240	546049	5398870	10
688241	545981	5398107	10
688242	547773	5399395	10
688243	548864	5399250	10 Peg
688244	548897	5399136	10
688245	548958	5398913	10 Aplite
688246	548864	5399250	10
688247	545636	5398185	10
688248	544106	5399783	11
688249	538730	5417059	Archean Sed
688250	538762	5417058	QV
688251	545032	5400271	10
688252	541111	5401708	7
688253	541540	5401379	Peg in 5b
688254	542090	5401133	7
688255	543078	5399918	11
688256	543169	5399908	11

**APPENDIX 6 – Photos**  
**[11 Pages]**



Photo 1. Glacially scoured amphibole syenite (11) on the shoreline at Carden Cove (South Group).



Photo 2. Basalt (5a) xenolith in amphibole syenite (11) at Carden Cove (South Group).





Photo 3. Contact of basalt (5b) on the right and augite syenite (10) along hydro-electric ROW (South Group).



Photo 4. Topography along hydro-electric ROW, looking west (South Group).



Photo 5. Glacial striations giving the appearance of banding or igneous bedding in gabbro (7) (South Group).



Photo 6. Topography along CP Rail ROW (South Group).



Photo 7. Steep glacially smoothed gabbro/monzodiorite (7) along the north shore of Sturdee Cove (South Group).



Photo 8. Area of Photo 7 as seen from across the water at Sturdee Cove Beach (South Group).



Photo 9. Pegmatitic augite syenite (10d) and basaltic (5a) xenolith (South Group).



Photo 10. Pegmatitic augite syenite (10d) cutting large basaltic (5b) xenolith (South Group).



Photo 11. Patchy amphibole syenite pegmatite (11g) at Carden Cove (South Group).



Photo 12. Amphibole natrolite-nepheline syenite (14a) with angular to sub-rounded xenoliths of basalt (5a) (West Group).



Photo 13. CF-KAW in grassy swamp landing zone (West Zone).



Photo 14. Little Pic River and typical topography just west of the West Group.



Photo 15. CF-KAW on a rocky beach area at Craddock Cove (South Zone).

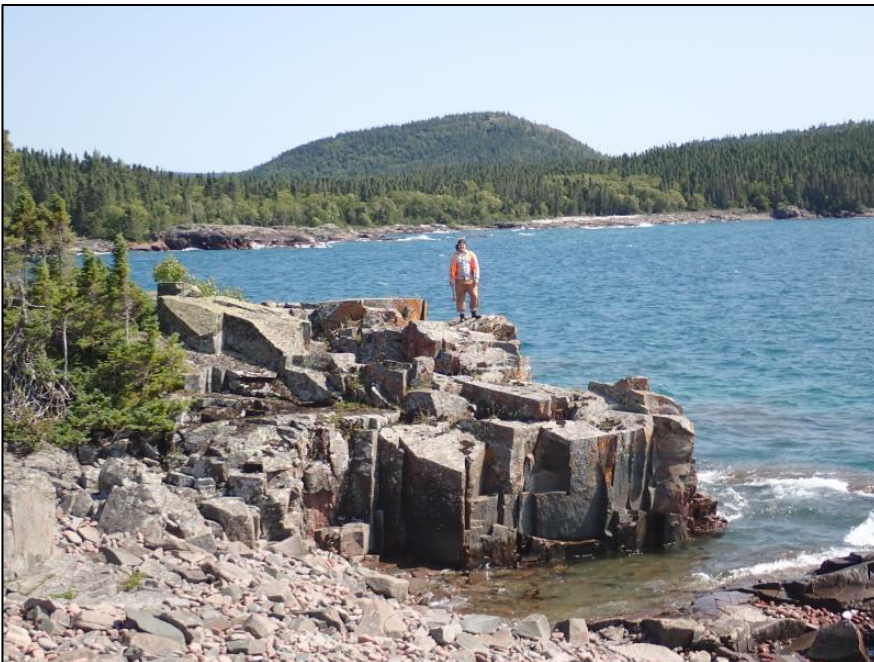


Photo 16. The author was assisted in the field by Mr. Adam ("AJ") Gilbert. Here Mr. Gilbert stands on a blocky outcrop of gabbro (7) along the shore of Lake Superior at Craddock Cove (South Group).



Photo 17. Peninsula Harbour and the Town of Marathon seen from claim 570408 (Marathon Group) about 200 m above the level of Lake Superior. Outcrop is amphibole syenite (11); Mr. Gilbert for scale.



Photo 18. CF-BHM on a small island of amphibole syenite (11) in Beatty Cove (South Group). A historical anchor for log booms is seen in the foreground.





Photo 19. CF-KAW toe-in on amphibole syenite (11) just east of Port Munro and about 70 m above the level of Lake Superior (South Group).



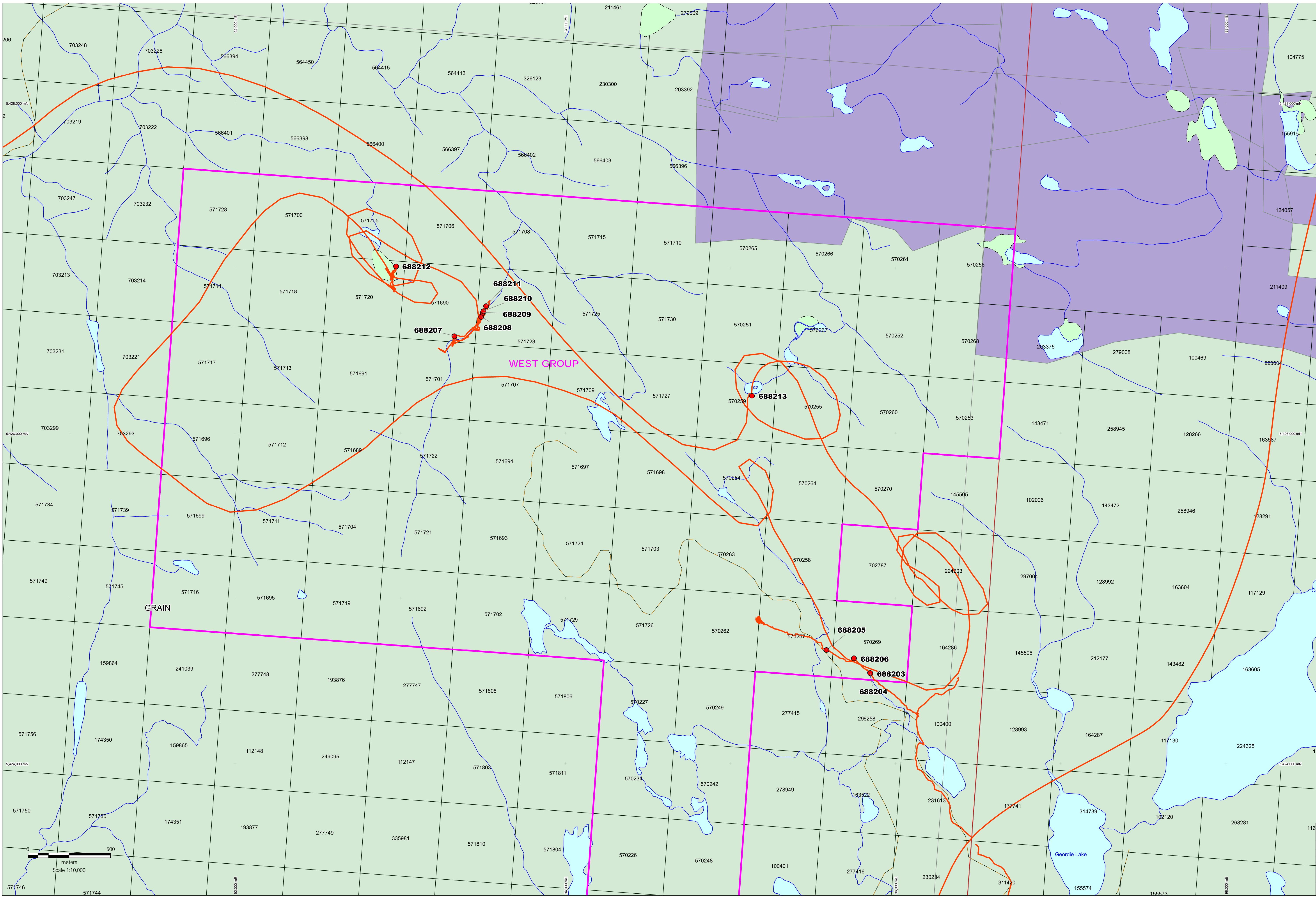
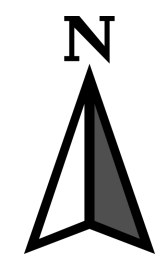
Photo 20. Ocellar basalt (5a) along the Trans-Canada Highway (South Group).



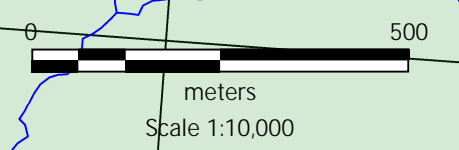
Photo 21. Augite syenite (10) at Duncan Creek and the Carden Cove Beach Road (Marathon Group).



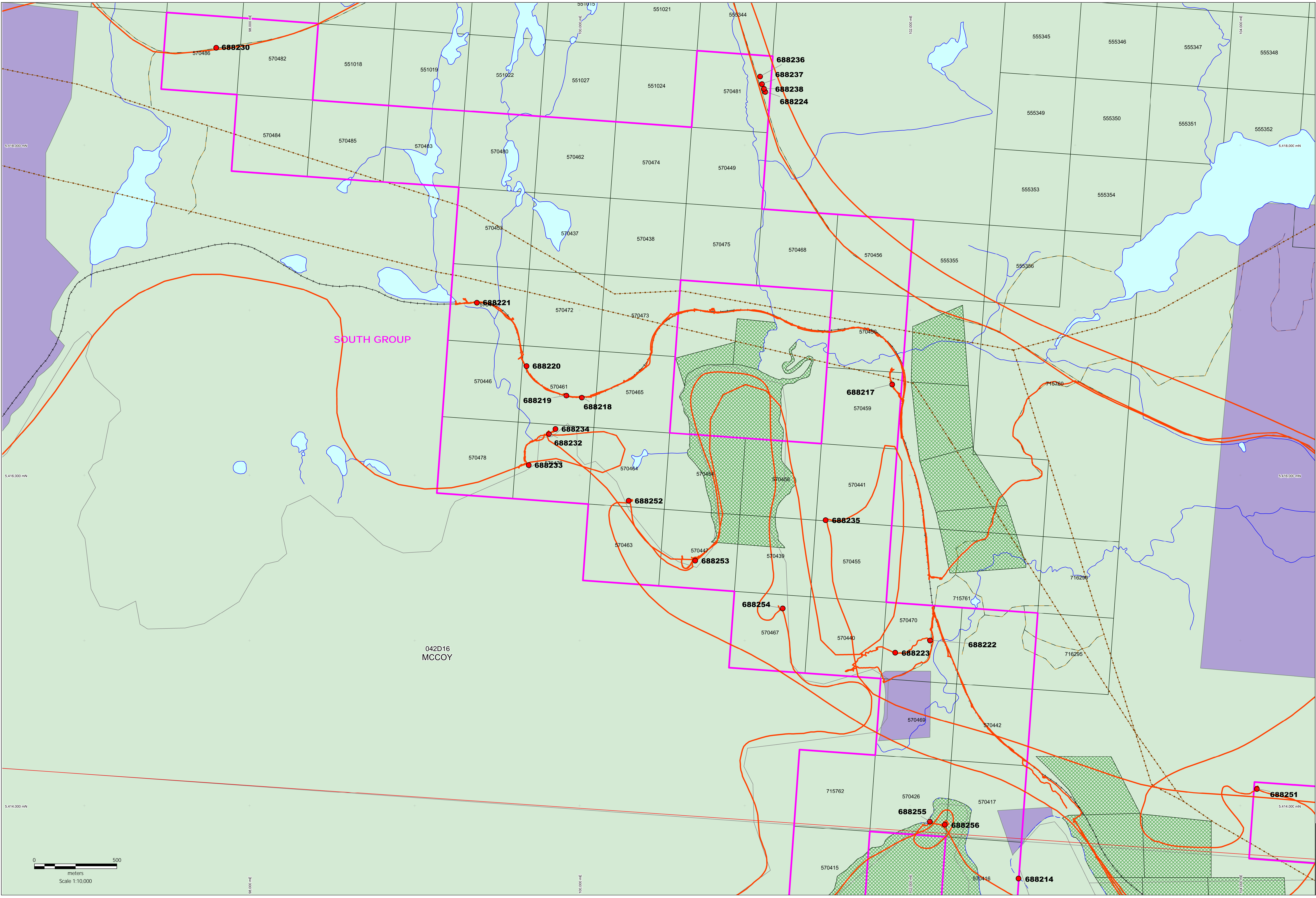
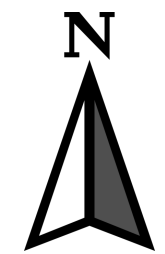
Photo 22. Camp Lake and Archean-age metasedimentary rocks (3) in the northwest corner of the North Group, west of Martinet Lake.



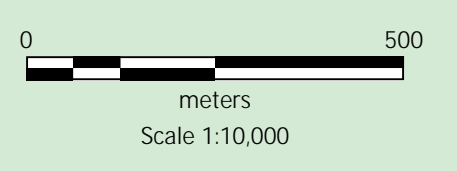
- Traverse
- Grab Samples (assays pending)
- Sienna Property Boundary
- Lakes
- Marsh
- Streams
- Roads
- Utility Lines
- Railways
- NTS
- gplan
- Operational Cell Claims
- Non Mining Land Tenure
- Mining Land Tenure



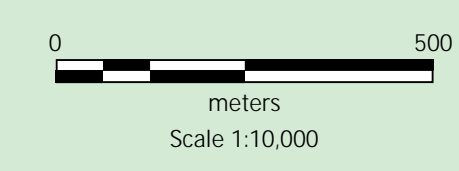
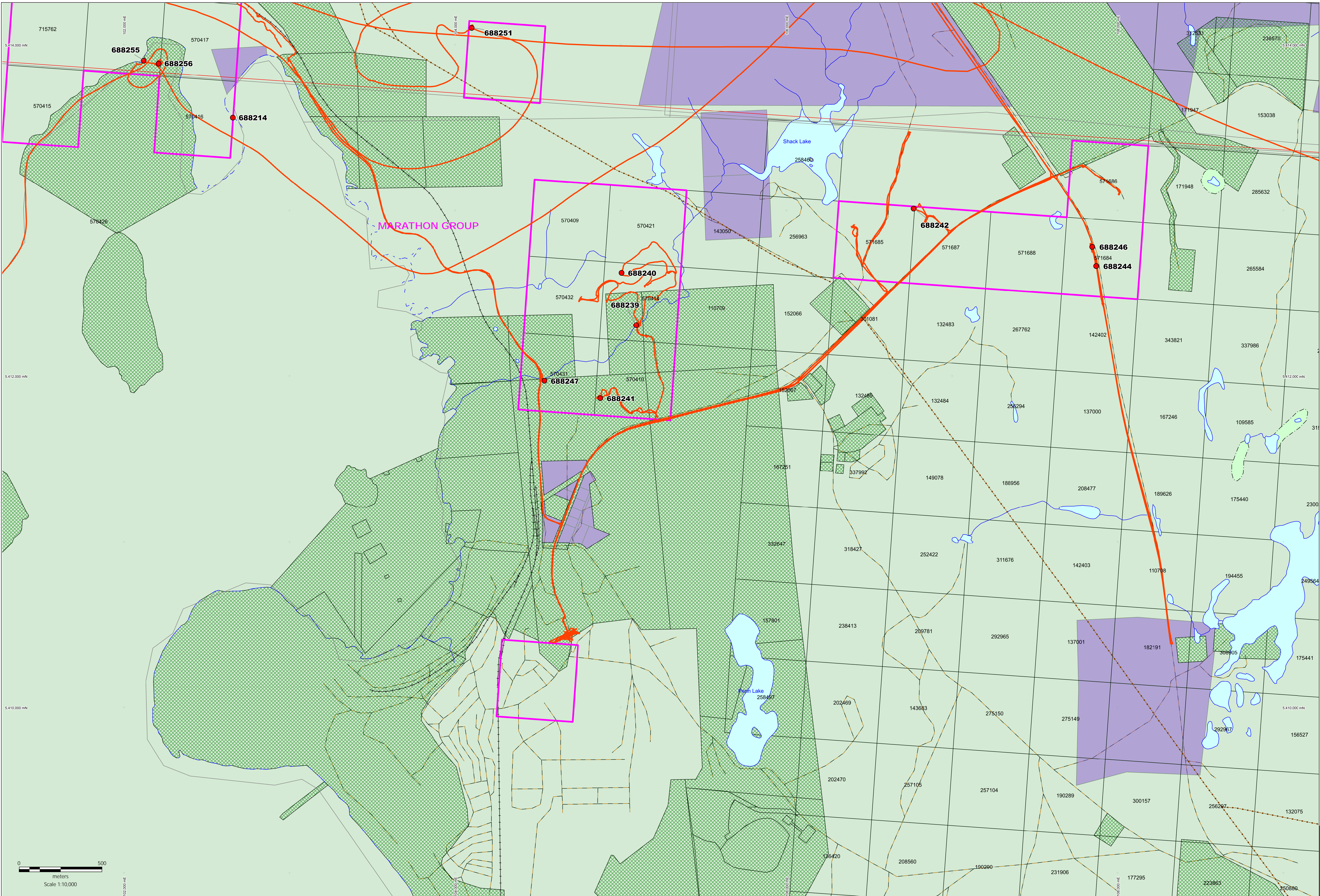
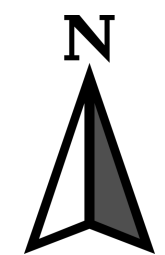
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Drawn: [blank]	
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Projection: UTM Zone 17 (NAD 83)	

















- Traverse
- Grab Samples (assays pending)
- ▭ Sienna Property Boundary
- ▭ Lakes
- ▭ Marsh
- ▭ Streams
- ▭ Roads
- ▭ Utility Lines
- ▭ Railways
- ▭ NTS
- ▭ gplan
- ▭ Operational Cell Claims
- ▭ Non Mining Land Tenure
- ▭ Mining Land Tenure

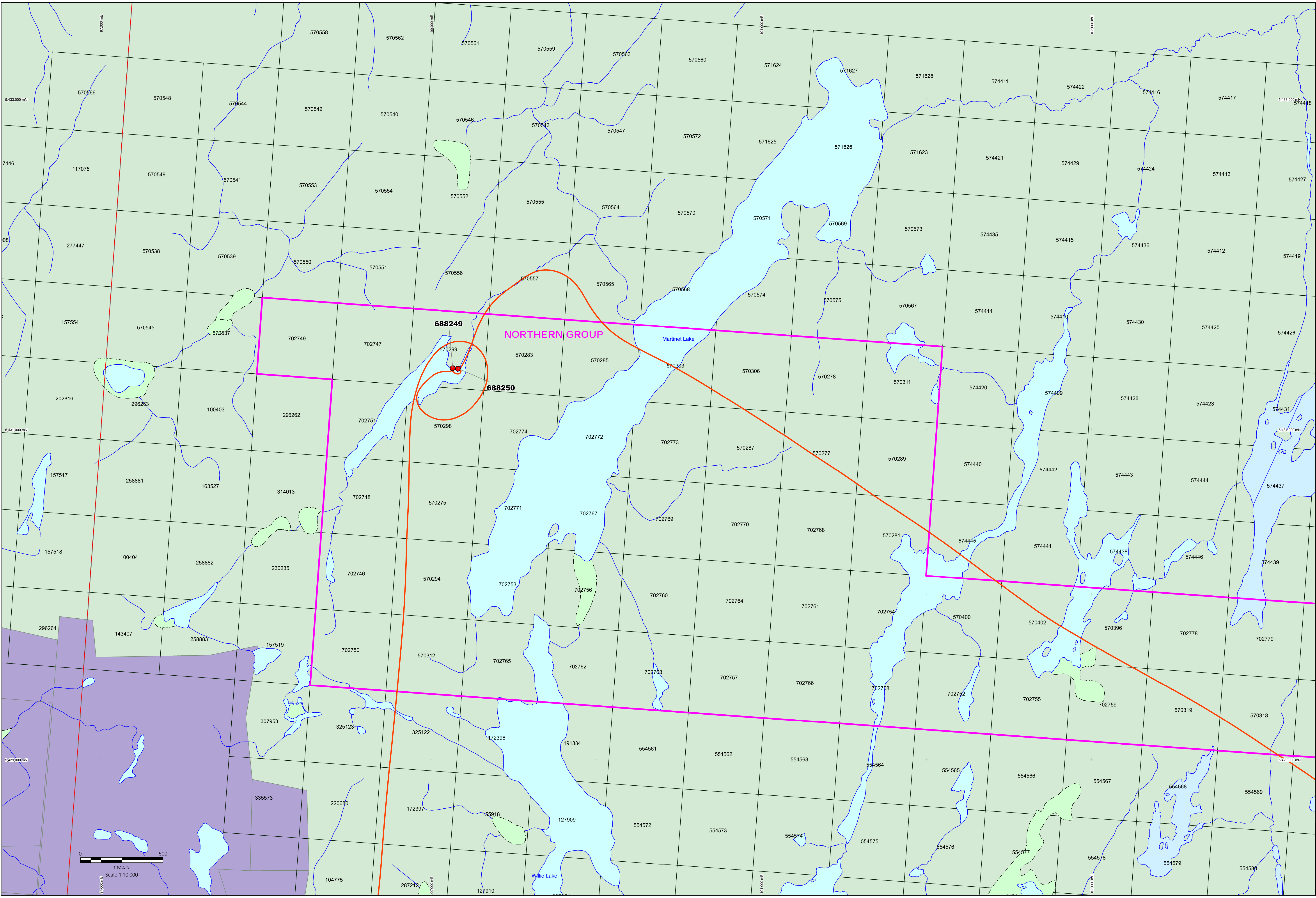
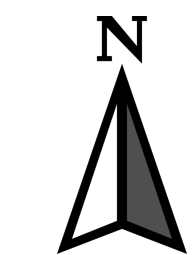


Map 2 South Group Grab Samples
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Projection: UTM Zone 17 (NAD 83)

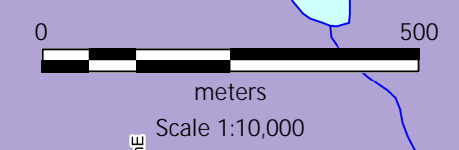


-  Traverse
-  Grab Samples (assays pending)
-  Sienna Property Boundary
-  Lakes
-  Marsh
-  Streams
-  Roads
-  Utility Lines
-  Railways
-  NTS
-  gplan
-  Operational Cell Claims
-  Non Mining Land Tenure
-  Mining Land Tenure

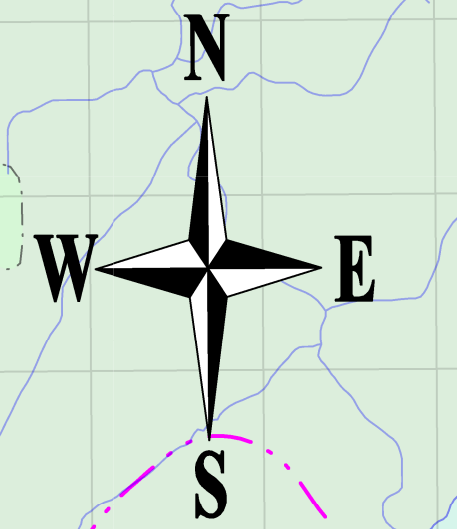
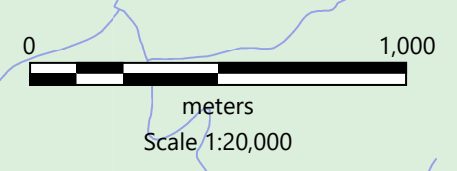
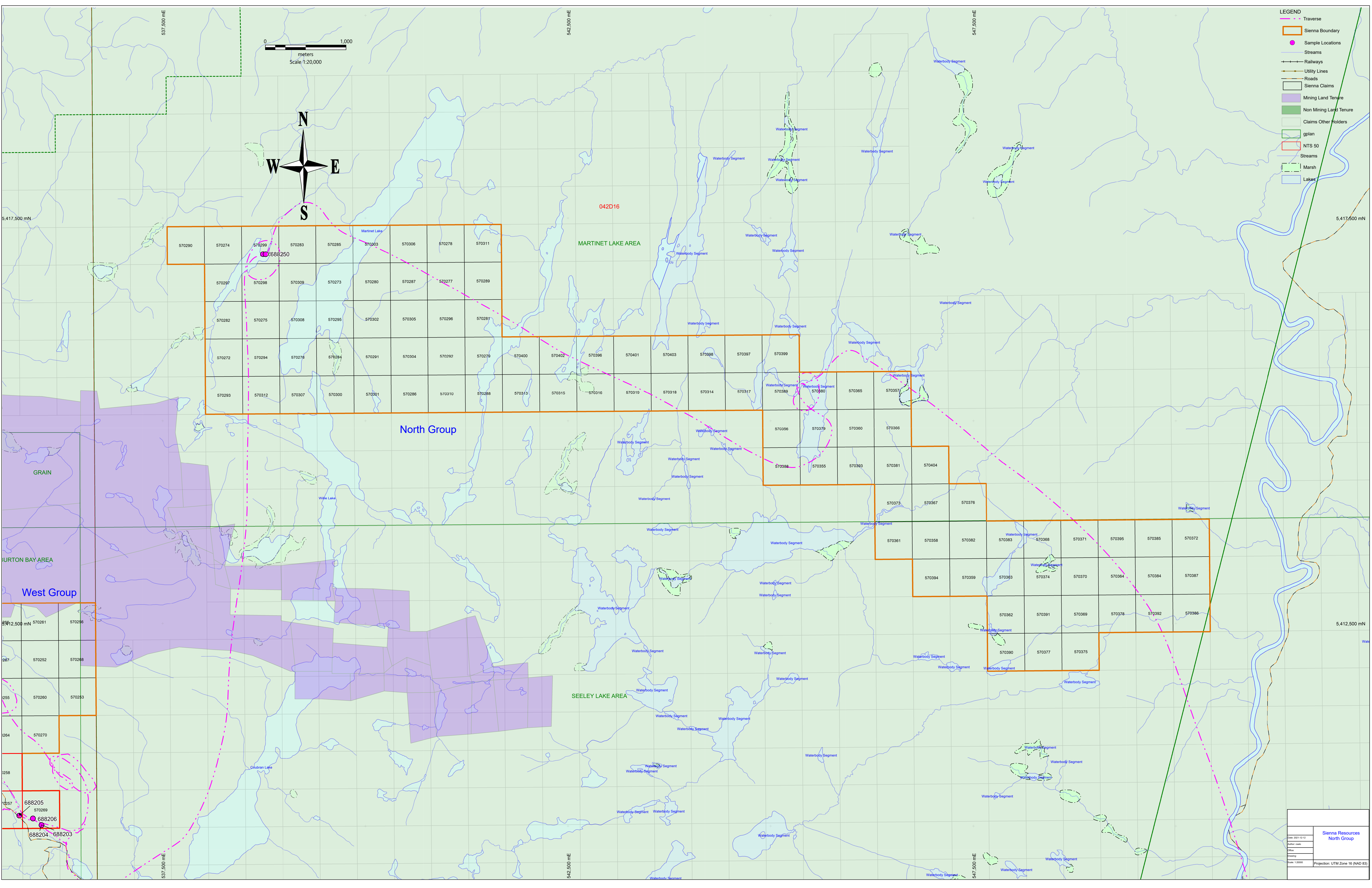
Drawn: 2023-04-26	<b>Map 3</b> Marathon Group Grab Samples
Author: csh	
Office:	
Drawn:	
Scale: 1:10000.00	Projection: UTM Zone 17 (NAD 83)



- Traverse
- Grab Samples (assays pending)
- Sienna Property boundary
- Lakes
- Marsh
- Streams
- Roads
- Utility Lines
- Railways
- NTS
- gplan
- Operational Cell Claims
- Non Mining Land Tenure
- Mining Land Tenure



Date: 2023-04-26	<b>Map 4</b> NORTHERN GROUP Grab Samples
Author: gplan	
Office:	
Drawn:	
Scale: 1:10000.00	
Projection: UTM Zone 17 (NAD 83)	



- LEGEND**
- - - Traverse
  - Sienna Boundary
  - Streams
  - Railways
  - Utility Lines
  - Roads
  - Sienna Claims
  - Mining Land Tenure
  - Non Mining Land Tenure
  - Claims Other Holders
  - gplan
  - NTS 50
  - Streams
  - Marsh
  - Lakes

042D16

MARTINET LAKE AREA

North Group

GRAIN

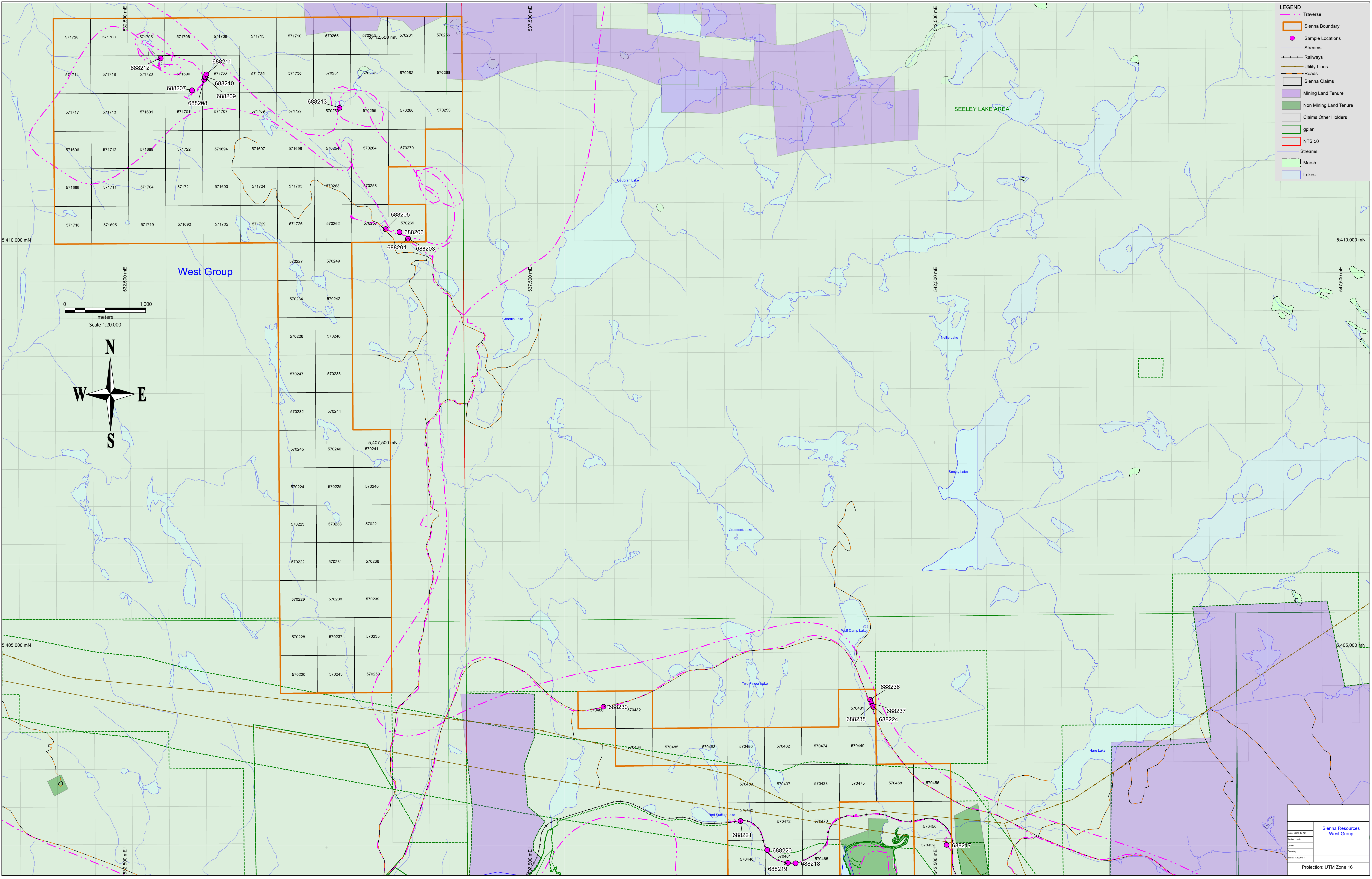
MURTON BAY AREA

West Group

SEELEY LAKE AREA

688205  
570289  
688206  
688204 688203

Date: 2017-12-12	<b>Sienna Resources North Group</b>
Author: csh	
Office:	
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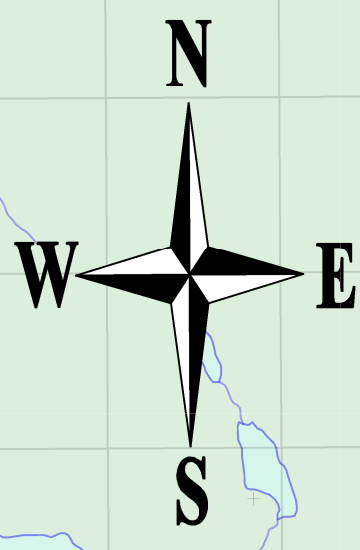
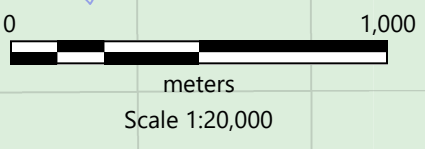
- LEGEND**
- - - Traverse
  - Sienna Boundary
  - Sample Locations
  - Streams
  - Railways
  - Utility Lines
  - Roads
  - Sienna Claims
  - Mining Land Tenure
  - Non Mining Land Tenure
  - Claims Other Holders
  - gplan
  - NTS 50
  - Streams
  - Marsh
  - Lakes

West Group

SEELEY LAKE AREA

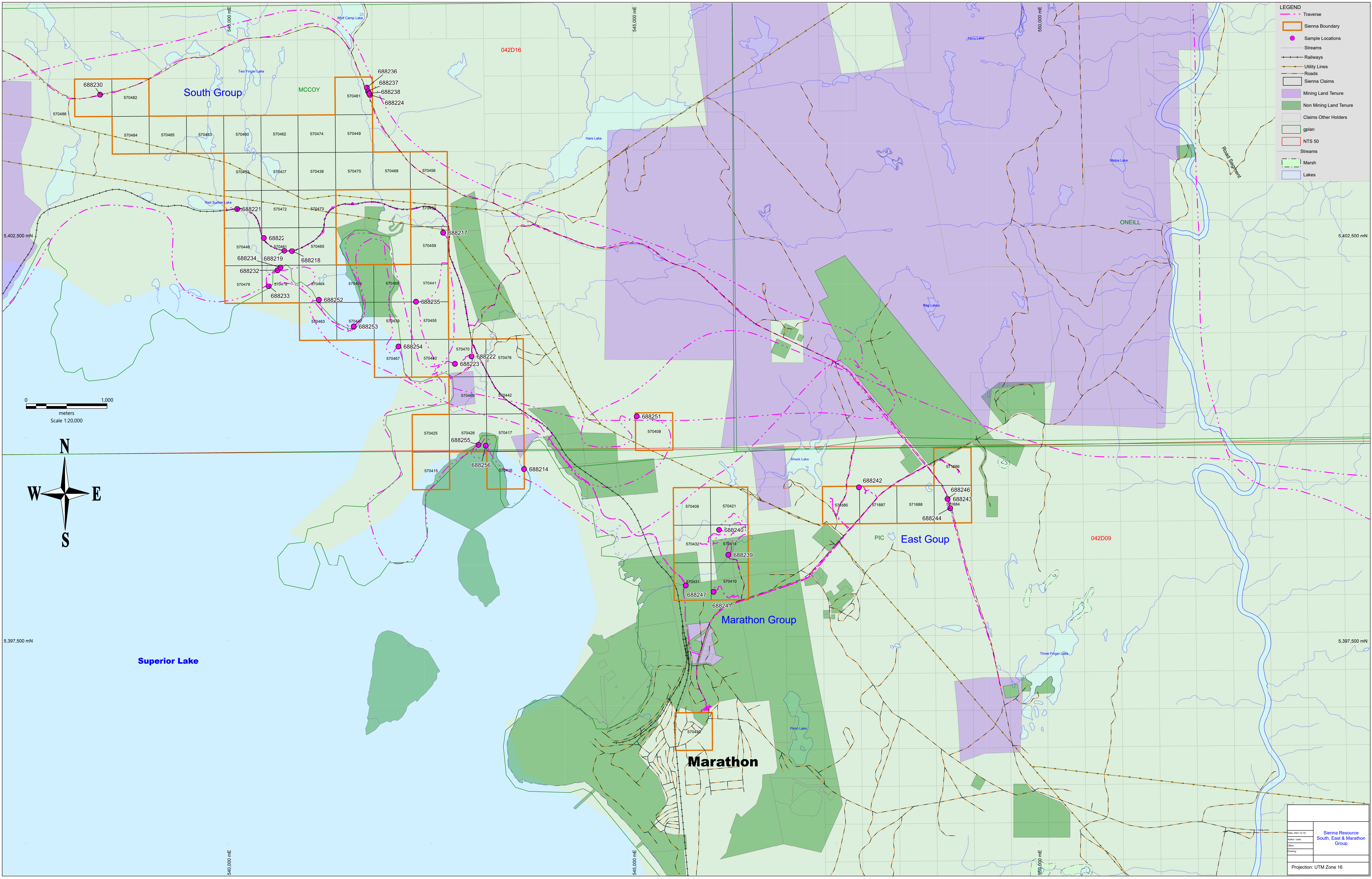
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5,405,000 mN



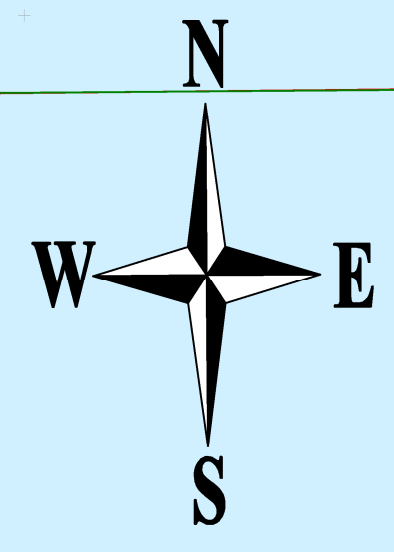
Date: 2017-12-12	<b>Sienna Resources</b> West Group
Author: csh	
Office:	
Drawing:	
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Projection: UTM Zone 16	





- LEGEND**
- Traverse
  - Sienna Boundary
  - Sample Locations
  - Streams
  - Railways
  - Utility Lines
  - Roads
  - Sienna Claims
  - Mining Land Tenure
  - Non Mining Land Tenure
  - Claims Other Holders
  - gplan
  - NTS 50
  - Streams
  - Marsh
  - Lakes

0 1,000  
meters  
Scale 1:20,000



Date: 2017-10-19	Sienna Resource
Author: csh	South, East & Marathon
Office:	Group
Drawing:	
Projection: UTM Zone 16	