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Final Report on the  
Trail-Minto and Roop-Carlin Properties  
Target Evaluation Module  
YMEP 18-066

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In the

Mayo Mining District

Yukon Territory

By

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# 1.0 Introduction

This report describes a ground based magnetic survey over targets on the Trail-Minto and Roop-Carlin claim groups (“Properties” Figure 1) in the Mayo Mining District, Yukon. This ground mag survey was targeted using data geochemical and structural data from Mayo Lake Minerals Inc. (“MLM”) previous programs on the properties. Numerous gold-silver and multi-elements in soils anomalies occur in target areas. Lowlands draining these areas are known to have considerable placer gold potential. Much of the placer gold recovered in the Mayo area is from creeks draining uplands. This area was generally overlooked during historical exploration due to bedrock cover and poor drainage which inhibited systematic exploration

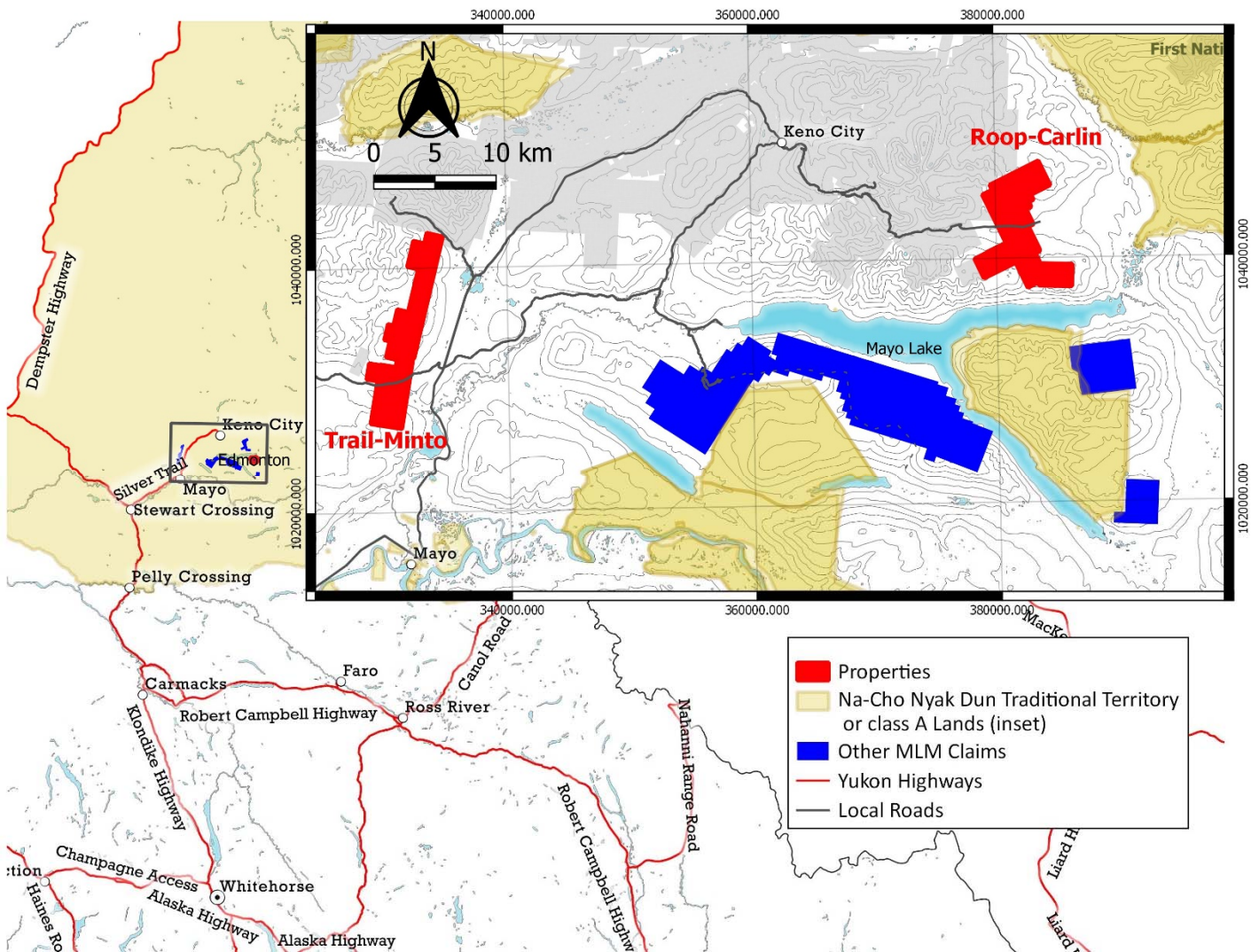


Figure 1: Project Areas and MLM's Properties

and prospecting. This program attempted to further define bedrock type, alteration and structures in the vicinity of defined geochemical anomalies within the survey areas. MLM completed two ground mag grids: i) over a major silver anomaly on the Roop-Carlin claim group in an area of low magnetic resolution during MLM's airborne magnetic survey; ii) across the Roaring Fork Stock to better define the edge of the intrusion, possible alteration and structures in areas without bedrock exposure. MLM contracted Dahrouge Geological Consulting Ltd. to complete the ground mag surveys between October 10<sup>th</sup> and October 20<sup>th</sup>, 2018.

## **2.0 Location and Access**

The 179 claim Trail-Minto Property and the 186 claim Roop-Carlin Property (Figure 1) were investigated during 2018. Trail-Minto is located 15km north of Mayo, Roop-Carlin is located 18km east of Keno City on NTS map sheets 105M/12, 13, and 15. The claims are registered in the Mayo Mining district under the name of Mayo Lake Minerals Inc.

Access to the Properties is provided by a variety of four wheel drive access trails and government-maintained gravel roads connecting to the Silver Trail highway. The Silver Trail connects with the Yukon's paved or chip-sealed highway network at Mayo (Figure 1).

## **3.0 Historical Work**

Historically placer mining of varying intensity occurred on many creeks draining the Properties. Locally notable placer creeks are Granite Creek, Keystone Creek, Ross Creek, Minto Creek, and Roaring Fork Creek.

The earliest regional mapping in the Mayo Lake area was undertaken by H.S Bostock in 1947. Early work by Bostock was followed from 1952 to 1965 by numerous workers who published geological maps; these included L.H Green et.al (1972), R.W Boyle (1964), and E.D Kindle (1962) with contributions by C.F

Gleeson (Boyle 1964). Mapping was reinitiated in early 1992 by J.A Hunt et al. (1996), D.C. Murphy et al. (1996) and C.F Roots (1997); in addition to fieldwork they integrated numerous geological publications dating from 1920 to 1996. Roots' work resulted in a regional map at 1:250,000 scale (Roots 1997). Surficial mapping was undertaken by Hughes (1983) in 1964 and 1979 and more recently by Bond (1999).

Operation Keno headed by Dr. C.F. Gleeson of The Geological Survey of Canada ("GSC") was completed in 1968 (Gleeson et al 1965-1968, Gleeson 1980a, Gleeson 1980b). It centered on Keno Hill and consisted of stream sediment, water, heavy-mineral and litho geochemistry programs. This program delineated many elemental anomalies in the region that were overlooked prior to work by MLM. The area was again stream sediment sampled by the GSC in 1986-87 (Figure 2) with a much lower sampling density (Friske 1989). Many of the anomalies delineated by operation Keno were not noted in 1987 because of the lower sampling

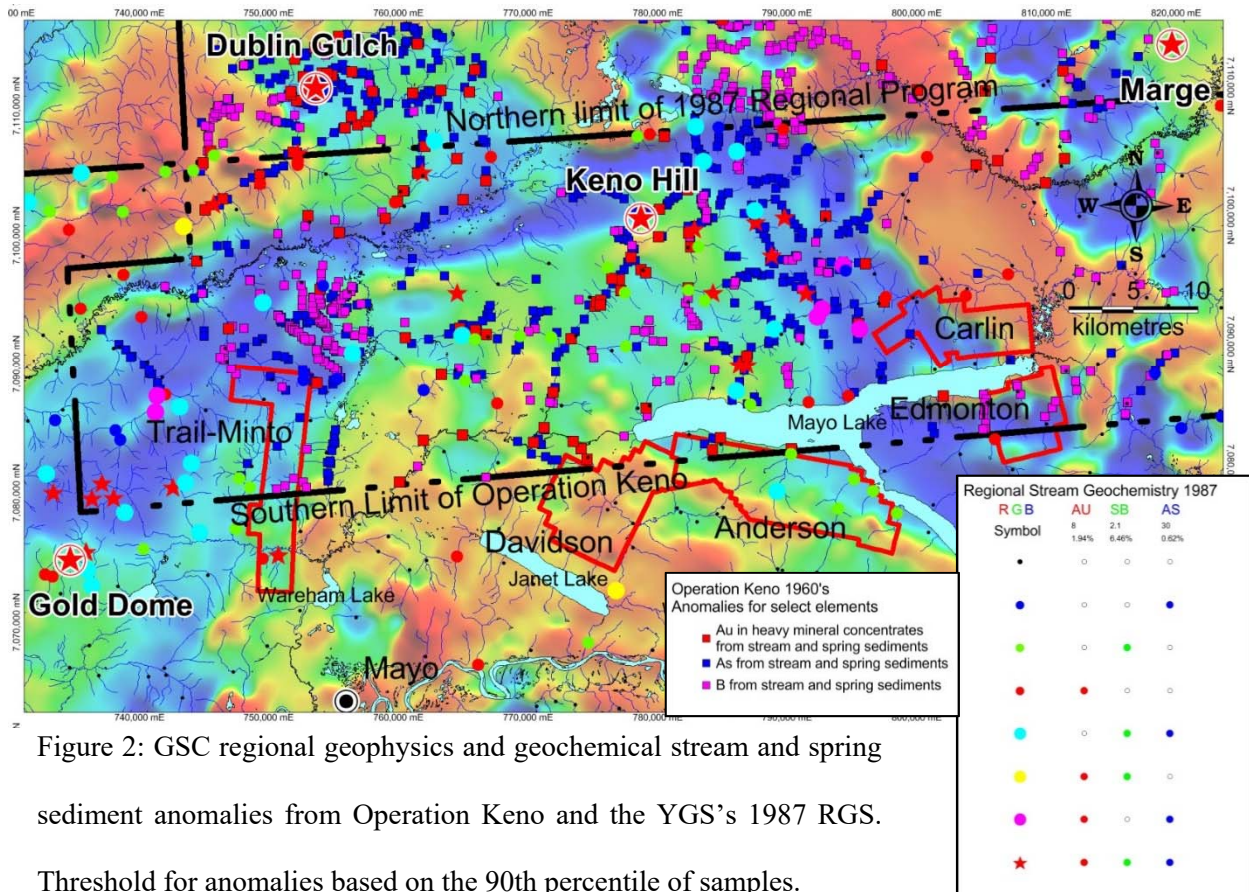


Figure 2: GSC regional geophysics and geochemical stream and spring sediment anomalies from Operation Keno and the YGS's 1987 RGS.

Threshold for anomalies based on the 90th percentile of samples.



density. Note that most major occurrences are not delineated by many anomalous samples from the 1987 program.

The GSC carried out two geophysical programs in the Mayo Lake area; the first at 1207m spacing in 1968 and a second at 2000m spacing in 1990 (Figure 2). These surveys show a major fault or lithological marker horizon with a WNW bearing paralleling the south shore of Mayo Lake on the Anderson and Davidson Properties. Also there is a slight magnetic low coincident with the Roaring Fork Stock similar to Dublin Gulch located on Trail-Minto.

### 3.1 Work Completed on MLM Properties

MLM had airborne geophysical surveys flown over all its properties in the Mayo area by Precision GeoSurveys Inc. (“PGI”) that saw the acquisition of high-quality magnetic data (Figure 3). The properties were flown using a Bell 206 BIII jet ranger. A total of 5098 line-kilometers were flown at an approximate height of 30m above terrain with a line spacing of 150m and tie lines every 1.5km. This program delineated

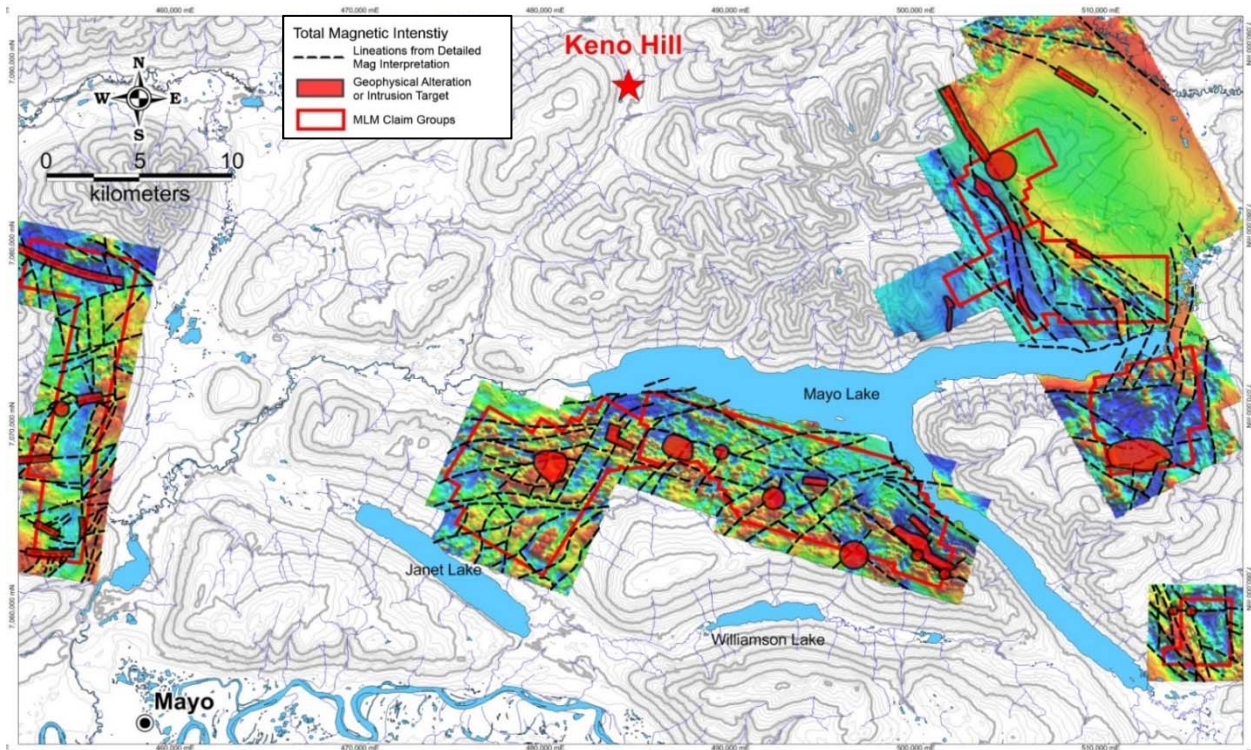


Figure 3: Detailed total magnetic intensity covering MLM claim groups

the major structural trends on the Properties and defined the likely extent of the Roaring Fork Stock. This detailed geophysical survey also covered to MLM's additional claim groups (figure 1).

In 2012 MLM followed up with a ridge and spur type reconnaissance sampling and prospecting program. MLM collected over 2300 geochemical samples identifying numerous geochemical anomalies in silts and soils requiring further sampling. Soil samples from this work revealed a 10km long trend of elevated gold values parallel to the Roaring Fork Stock with Au values of up to 73 ppb Au on the Trail-Minto property.

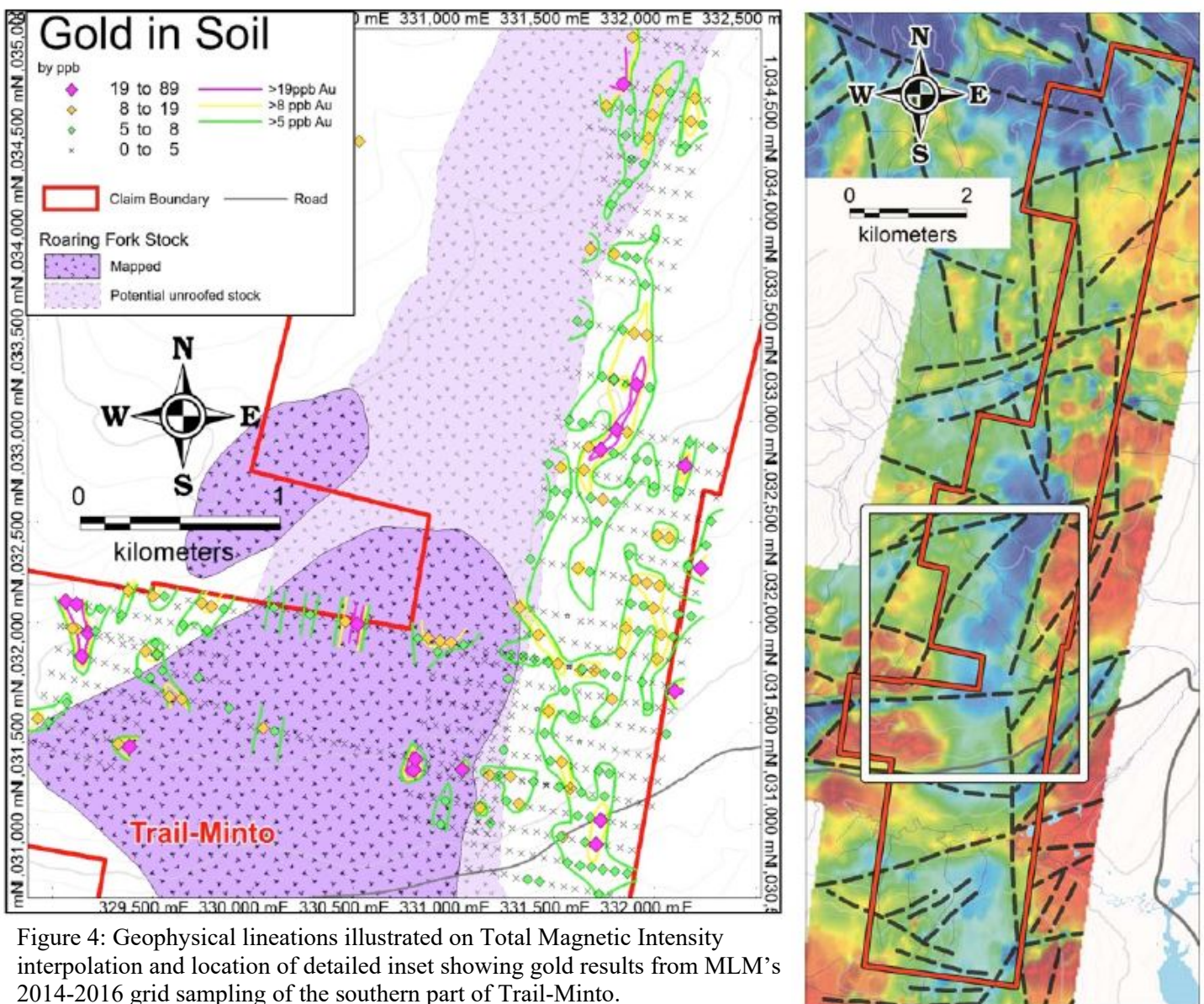


Figure 4: Geophysical linesations illustrated on Total Magnetic Intensity interpolation and location of detailed inset showing gold results from MLM's 2014-2016 grid sampling of the southern part of Trail-Minto.



Reconnaissance sampling indicated a significant Ag-Au-multi-element anomaly at the western edge of the Carlin-Roop Property.

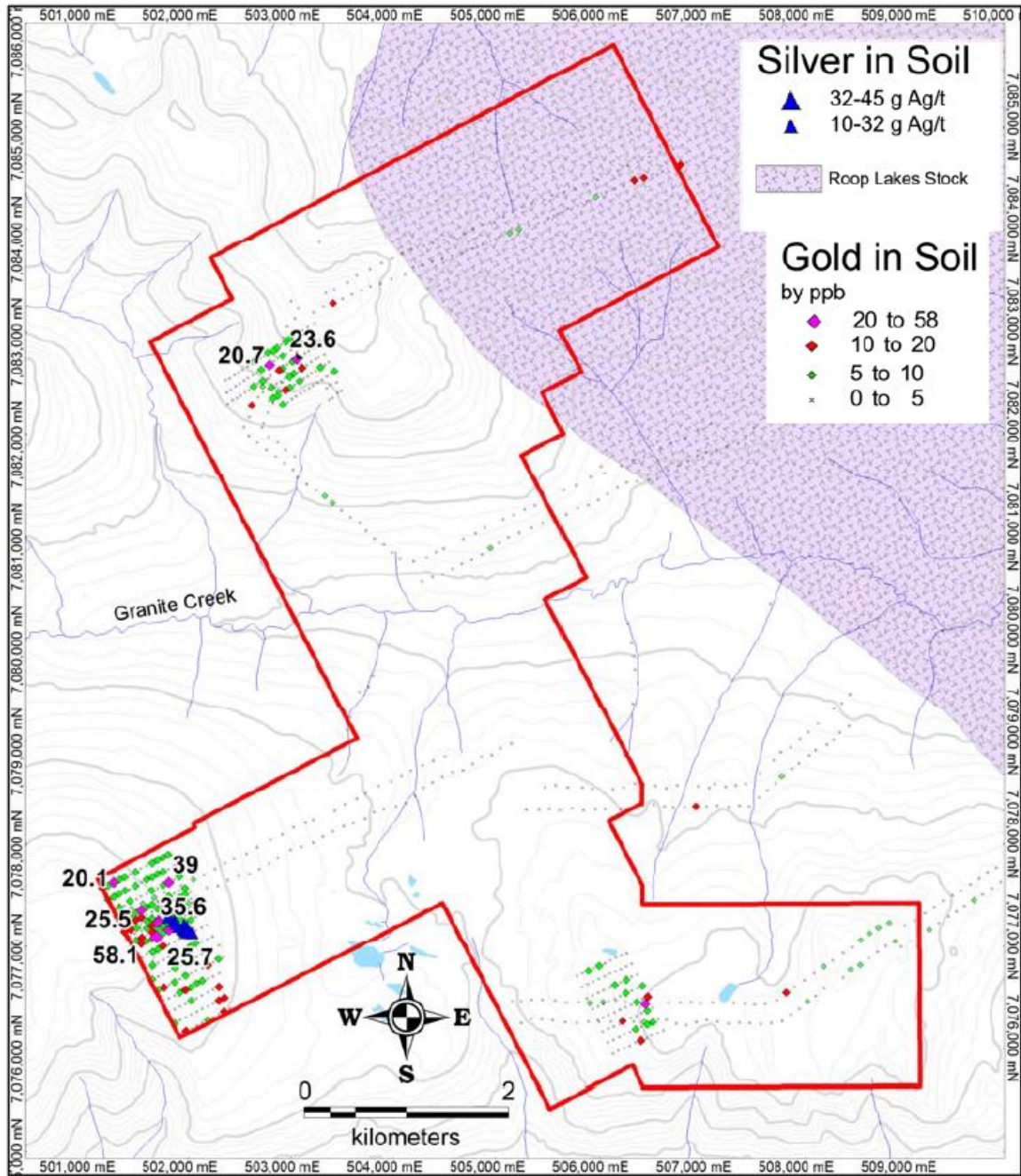


Figure 5: Gold Results from MLM's 2012 reconnaissance sampling, and 2014-2017 grid sampling of the Carlin-Roop property; notable silver analysis are also indicated.

Grid type soil sampling programs were conducted by MLM on Trail-Minto and Carlin-Roop in 2014, 2015, 2016 and 2017 (Figures 4 and 5). Two grids were completed on the Trail-Minto property near the Roaring Fork Stock in 2015, these grids were expanded and linked by further sampling in 2016. This program identified linear Au-multi-element anomalies, corresponding to the edge of the broad 10 km north-south trending magnetic low, likely the extent of the unroofed Roaring Fork Stock. Strong associations between Au, As, Sb, and some base and rare earth metals were identified, as well as a Ba and W association with anomalous Au values in the southern grid area. The former is attributed to sheeted veins in the country rock surrounding the Roaring Fork Stock and the latter are attributed to mineralized veins within the unroofed stock. The western portion of the grid delineated a strong linear gold in soil anomaly with no apparent elemental associations.

Two grids were completed in the southern Carlin-Roop property in 2015 of which the westernmost was expanded in 2016. The western grid delineated a >1km long northwest trending Ag in soils anomaly corresponding to magnetic lineations identified in earlier geophysical work. This anomaly shows a strong correlation between Ag and Pb indicative of veins of Keno Hill-type mineralization. This anomaly was further defined by a detailed 30m x 30m spaced soil grid in 2017 delineating 300m of 14-45 g Ag/t in soil (14-45 ppm Ag).

## **4.0 Geomorphology**

The Properties cover highlands south of Mount Haldane and west of the Mayo River as well as north of Mayo lake on the south eastern flanks of the Gustavus Range (Figure 1). Valleys containing Mayo and the Mayo River are broad and U-shaped due to glacier ice being funneled down them from east to west during Pleistocene glaciations. Most tributaries to the large valleys are narrow and confined by moderate to steep slopes. Uplands generally have moderate slopes. Streams draining the properties are all part of the Yukon River watershed.

Carlin-Roop been subjected to multiple glaciations (Hughes 1983). The youngest Pleistocene glaciation, the McConnell Glaciation, was confined to the trunk valleys occupied by Mayo lake and the eastern portion of Granite Creek (Bond 1999). These valleys were filled with fast flowing ice that scoured their bottoms and sides. The upper limit of the McConnell Glaciation is marked by lateral moraines and kame terraces along the sides of these valleys. Minor lobes penetrated the upper reaches of Granite Creek; here their former extent is marked by end moraines and kames; and may have flowed through the valley between Granite and Keystone creeks. The westward limit of the McConnell Glaciation is along the base of the highlands covered by Trail-Minto west of Halfway Lakes between Mount Haldane and the Minto River with a minor lobe penetrating the Minto River Valley. Uplands above the McConnell glacial limit were covered by glacial ice during the earlier Reid glaciation. The ice was probably cold-based and transport of rock and debris was minimal as evidenced by landforms. Some uplands are mapped as a mixture of colluvium and till. Some patches of colluvium and alluvial benches at higher elevations may be representative of the Reid and older glaciations.

Outcrop is sparse on the properties, rarely exceeding 5% in any area. Soil development is immature, except on parts of the terrain above the McConnell glacial limit. Permafrost is likely pervasive on plateaus and north facing slopes but discontinuous on south facing slopes and at high elevations.

Vegetation is predominantly black spruce with willow and alder understorey. Lowlands, north facing slopes and plateaus below the treeline exhibit a thick cover of organic matter, moss and Labrador tea. South facing slopes are similarly vegetated but also include balsam and poplar groves.

## **5.0 Regional Geology and Mineralization**

The Properties are located within the Selwyn Basin of the Tintina Gold Belt. Simplified regional geology as shown on Figure 6 depicts Upper Proterozoic to Lower Cambrian Hyland Group stratigraphy in contact with Paleozoic metasedimentary units of the Ern Group and Keno Hill Quartzite along the Robert Service Thrust (“RST”). Mid-Triassic mafic sills and greenstones are common within the Keno Hill Quartzite and

Ern Group, but are rarely encountered in other units. All stratigraphic units have been intruded by the Mid-Cretaceous age Tombstone Plutonic Suite, which host several known gold deposits including the eagle deposit at Dublin Gulch, which hosts an open pit measured and indicated resource of 3.6 million ounces of gold at a grade of 0.67g/t (2019). The 100sq. km. Roop Lakes Stock, east of the Keno Hill Camp, is the largest member of the Tombstone Plutonic Suite and probably drove hydrothermal circulation leading to the mineralization at Keno Hill, as referenced by Roots (1997).

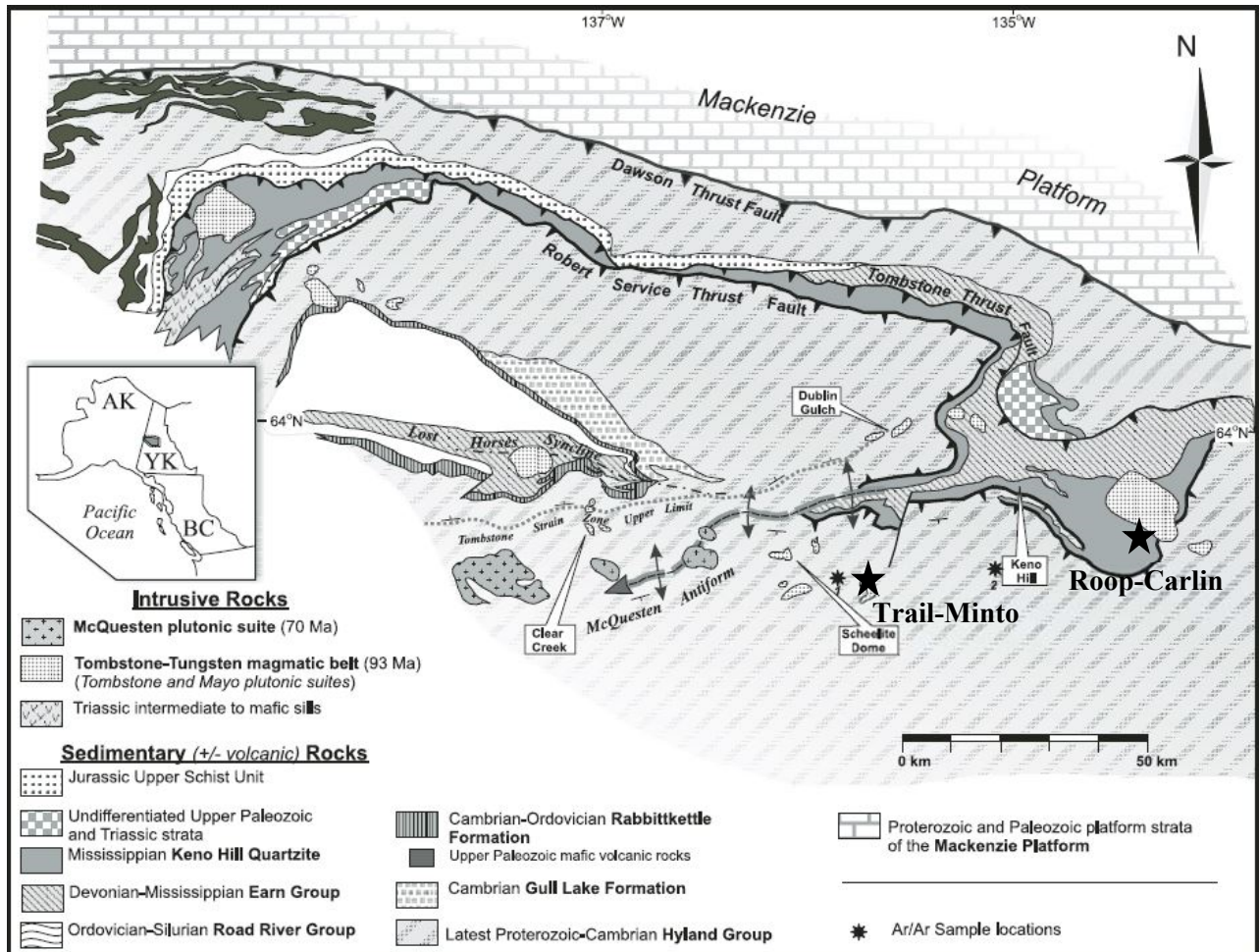


Figure 6: Mayo Lake and Selwyn Basin Geology. From Mair et al. 2006. Labeled stars indicate the claim groups where work was completed in 2018.

The dominant structural features in the area are a pair of imbricated thrust sheets; the RST and the Tombstone Thrust Sheet (“TTS”) have over 150km of combined NE directed transport of rock masses. The RST Sheet itself contains many internal thrusts that are commonly difficult to distinguish due to subsequent intense folding of faults and contacts and a strong penetrative structural fabric imparted by the later



underlying TTS; the area deformed during this event is commonly referred to as the Tombstone Strain Zone. Intense folding is especially evident in units immediately around Keno Hill. Large open folds, the McQueston Antiform (E-W) and Mayo Lake Antiform (NW-SE), and several inferred brittle faults were developed after the large thrusting events (Roots 1997). A significant WNW geophysical lineation, which parallels the south shore of Mayo Lake appears to be a regional fault possibly demarcating segments within the RST Sheet.

Two major gold occurrences are located within 30 km of the properties. Both are located in the upper plate of the RS Thrust within Hyland Group metasedimentary rocks. Sheeted veins related to the Tombstone Plutonic Suite contain most of the gold at the Eagle Deposit and Gold Dome (formerly Scheelite Dome). The most advanced project is the Eagle Deposit currently under development; it hosts an open pit reserve containing 2.7 million ounces of gold at a grade of 0.67g/t.

### **5.1 Mineralization Styles**

Mineralization within the Tintina Gold Belt is primarily the result of intrusion related gold systems; these large epizonal systems result in variable deposits that on the surface may appear unrelated. The most distal mineralization associated with these felsic intrusives are polymetallic Ag-Pb-Zn veins similar to the locally developed Keno Hill Type veins. This mineralization represents the furthest extent of hydrothermal influence related to these intrusions and may occur many kilometers from the source stock (Figure 7). Consensus is that Keno Hill Type Veins (“KHTV”) are the product of hydrothermal circulation in reactivated structures driven by the emplacement of the Roop Lakes Stock, up to twenty kilometers away. The veins are generally within the Keno Hill Quartzite, but are inferred to cut through the RST and continue into the overlying Hyland Group. Abundant narrow Cretaceous dykes (Murphy 1997) related to the Tombstone Suite near Keno Hill could be an alternate hydrothermal engine or fluid source. In addition to Ag, Pb and Zn, other vectors for KHTV include Ba and Cu and in some cases Sb, Fe and Ca. At intermediate distances from source plutons, As-Sb-Au veins develop and have been the subject of minor exploration around Van Cleaves Hill, west of Mayo Lake.

Proximal mineralization associated with Tombstone intrusives are sheeted gold veins or stockworks within the rim or immediately adjacent to Tombstone Suite plutons. Intrusion related mineralization itself is generally (i) enriched in Au-Bi-Te, possibly W; (ii) depleted in base metals and (iii) situated in tensional zones of the stock.

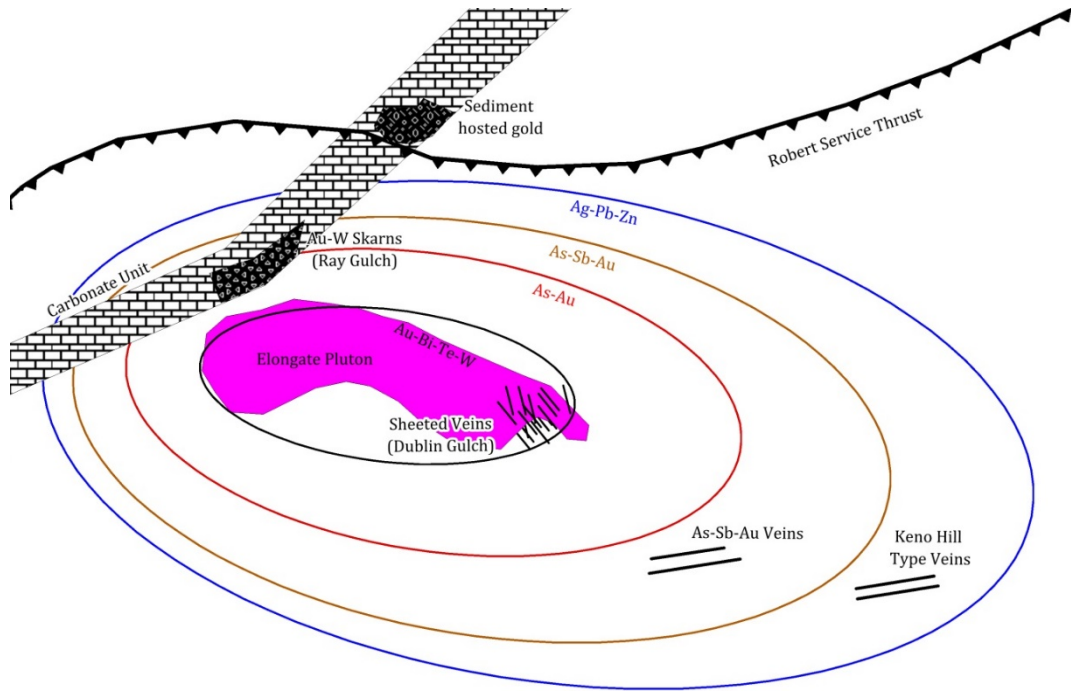


Figure 7: Idealized hydrothermal model for intrusion related gold systems in the Tintina Gold Belt (modified from Hart et. al 2002)

Where hydrothermal circulation contacts carbonate lithologies skarnification is common, such as at the Ray Gulch tungsten skarn near Dublin Gulch. These skarns are generally high in Au-W-Cu-Zn. Skarnification of rocks surrounding Tombstone suite intrusions will result in hydrothermal signatures different from those illustrated in Figure 7.

The Keno Hill silver camp has produced over two hundred million ounces of silver since 1921 from KHTV. Productive veins occur in the Keno Hill Quartzite and underlying Lower Schist (Earn Group). Although faults with associated mineralization (mineralized faults) are believed to cut through the RST and continue into the Hyland Group, no significant silver mineralization has been discovered above the RST. Ore shoots within the veins typically consist of galena, sphalerite and tetrahedrite with siderite or quartz gangue. The

mineralized faults trend northeast and dip steeply to the southeast with left lateral offsets ranging from a few metres to over a hundred metres (Boyle 1965). Longitudinal faults offsetting the mineralized faults trend perpendicular to them and dip 20° to 30° to the southwest.

A proximal relationship to crustal scale features appears to be common among deposits in the Tintina Gold Belt and is indicative of orogenic type gold deposits, the other major style of mineralization within the Tintina Gold Belt. Orogenic gold deposits typically occur localized along major crustal scale collisional suture zones and related splays. The major structures serve as conduits to pump deeply sourced metamorphic fluids to the secondary structures where mineralization takes place. Depth of emplacement is highly variable inflicting a strong control on vein morphologies which generally consist of gold bearing quartz-carbonate veins and veinlets with minor sulphides crosscutting varied host rocks. The wallrock is typically altered to silica, pyrite and muscovite within a broader carbonate alteration halo.

The following characteristics of the orogenic deposit model are modified from Ash and Alldrick (1996). Orogenic veins have a wide variety of morphologies dependent on the competency and depth of emplacement. Commonly enechelon veins and tabular fissure veins in competent host lithologies; stringers forming stockworks in less competent lithologies; carbonate altered shear zones developed in ductile mineralization regimes and crustiform veining and epithermal characteristics in very shallow examples. Lower grade bulk-tonnage styles of mineralization may develop in areas marginal to veins associated with disseminated sulphides and may also be related to broad areas of fracturing.

Silicification, pyritization and potassium metasomatism generally occur adjacent to veins (usually within a metre) within broader zones of carbonate alteration, extending up to tens of metres from the veins. Carbonate alteration consists of talc and iron-magnesite in ultramafic rocks, ankerite and chlorite in mafic volcanic rocks, graphite and pyrite in sediments, and sericite, albite, calcite, siderite and pyrite in felsic to intermediate intrusions. Quartz-carbonate altered rock and pyrite are often the most prominent alteration

minerals in the wallrock. Fuchsite/mariposite, sericite and scheelite are common where veins are associated with felsic to intermediate intrusions.

Ore minerals include native gold, pyrite, arsenopyrite, with lesser galena, sphalerite, chalcopyrite, pyrrhotite, tellurides, scheelite, bismuth minerals, cosalite, tetrahedrite, stibnite, molybdenite and gersdorffite (nickel, arsenic sulphide) in a gangue of quartz and carbonates (ferroan-dolomite, ankerite, ferroan-magnesite, calcite and siderite), and lesser albite, mariposite (fuchsite), sericite, muscovite, chlorite, tourmaline, graphite. Host rocks are varied including mafic volcanic rocks, ultramafic and mafic intrusions, fine clastic rocks, chert, and felsic to intermediate intrusions.

Elemental associations are gold, silver, arsenic, antimony, potassium, lithium, bismuth, tungsten, tellurium and boron, ±(copper, lead, zinc and mercury). Geophysics is useful in outlining faults indicated by linear magnetic anomalies and areas of carbonate alteration indicated by negative magnetic anomalies due to destruction of magnetite. Associated deposit types include gold bearing sulphide mantos, silica veins and placer gold.

## **6.0 Property Geology**

The Trail-Minto claim group is underlain by phyllites, schists and carbonates of the Hyland Group metasediments (Figure 8) occasionally intruded by felsic dykes. The Roaring Fork Stock underlies the south part of the Trail-Minto claim group and has a similar age to the Tombstone Intrusive Suite. Most stratigraphy has bedding parallel or sub-parallel to foliation, which dips shallowly generally southeast except where modified by small scale isoclinal folding.

The Roop-Carlin claim group is underlain by Keno Hill Quartzite intruded by Triassic greenstones and the Cretaceous Roop Lakes Stock. A contact metamorphic aureole extends away from the stock up to 4km affecting most units underlying the property. .



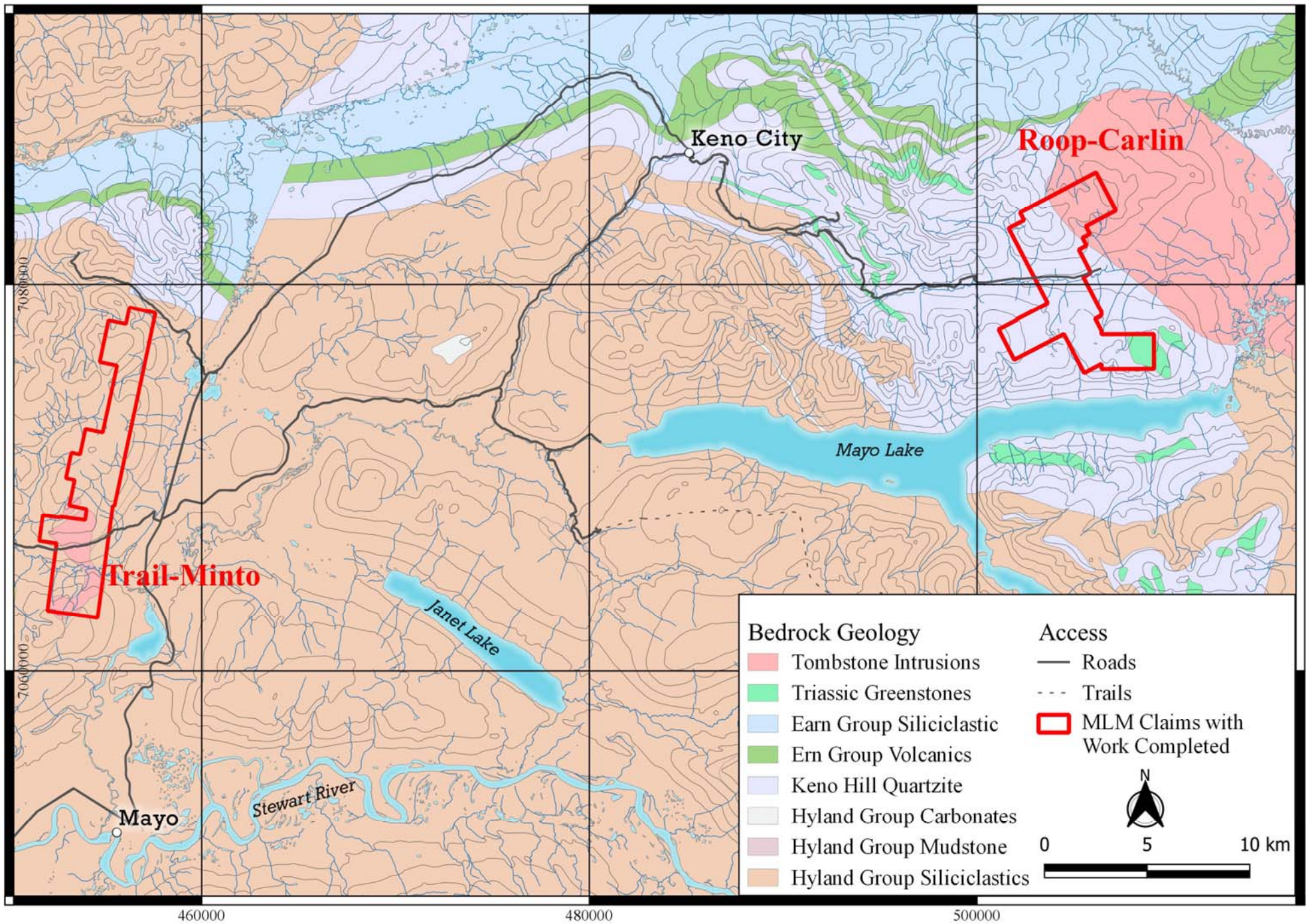


Figure 8: Geology of Mayo Lake showing MLM claim groups claim extents as of 2018.

## 6.1 Stratigraphy

Underlying Trail-Minto is primarily Hyland Group which is locally mapped as the Yusezyu Formation, which consists of compositionally layered medium to coarse-grained micaceous quartzose phyllite; muscovite-chlorite gritty phyllite; green and grey impure quartzite; metaconglomerate (Roots 1997). Locally metasediments are comprised of interbedded variably quartzose arenaceous schists and carbonates.

The stratigraphy underlying Roop-Carlin is exclusively Keno Hill Quartzite which is comprised of massive to well foliated lineated quartzite with lesser phyllitic quartzite, chloritic and carbonaceous phyllite (Roots 1997). On the Property the Keno Hill quartzite is interbedded with intermediate to felsic volcanoclastics, likely a local extension of the “Marge sequence”, a unit abundant green weathering tuffaceous metavolcanic rocks which host the Marge VMS deposit east of the Keno-Ladue River. Also present, but rare, are thin beds of carbonates.

## 6.2 Intrusions

The Roop Lakes Stock is roughly 100 sq km and centered on the Roop Lakes just east of Roop-Carlin. The marginal phase is quartz diorite to quartz gabbro with abundant chloritized hornblende. The main phase is medium-grained granodiorite with lesser quartz monzonite with occasional hornblende is up to 15 mm long. The contact locally is a 100m wide zone of aplite and pegmatite dykes (Green, 1971) in quartz phyllite. The metamorphic aureole extends up to 4km beyond the contact grading from sillimanite to biotite schists.

The Roaring Fork Stock underlying Trail-Minto is predominantly fine grained with phenocrysts of biotite and quartz. The age of the Roaring Fork stock is 91.7Ma (Roots 1997) placing it firmly within the Tombstone Plutonic suite. The porphyritic texture of the Roaring Fork Stock indicates it is a high level intrusion that cooled at a shallow level. Numerous small intrusions have been mapped on the north part of the Trail-Minto Claim Group probably of tombstone age.

Triassic sills of greenstone and gabbroic composition are common on the Property. They are dark green, foliated, fine to medium grained and weather in a blocky fashion. The main mineral assemblage consists of

amphibole, chlorite and plagioclase. Sills are common in the Keno Hill Quartzite and Ern Group and are also known, though rare, within the Hyland group. Due to their commonly small size and abundance many such intrusions are located on the Property though not indicated on figure 8.

### **6.3 Structure**

Deformation on the properties is typical of the Tombstone Strain zone, including a strong penetrative fabric and intense large scale deformation (Roots 1997). Broad post-metamorphic folding is also present and is indicated by variable foliation dips. Foliation is generally shallow dipping southwest to southeast. Boudinaged quartz +/-carbonate veins are common within the Hyland Group and generally parallel to foliation. These veins likely predate the development of the Tombstone Strain Zone.

### **6.4 Mineralization**

The properties are prospective hosts to a variety of deposit styles related to the complex Mesozoic and Cenozoic metamorphic, plutonic and volcanic history associated with the formation of the northern Canadian Cordilleran orogeny. The most attractive of these are:

- Polymetallic veins; mainly Keno Hill Type, which are typically high in silver, lead and zinc and are related to the intrusion of the Tombstone Plutonic Suite and constitute the main ore at Keno Hill. Soil Surveys strongly suggest at least one such vein underlies the Roop-Carlin Property.
- Intrusion related gold; such as Dublin Gulch and Fort Knox. These deposits are related to post-orogenic, mid-Cretaceous Tombstone Suite stocks that intruded Selwyn Basin sedimentary rocks.
- Orogenic gold veins; Jurassic in age, formed after peak metamorphism of the Yukon-Tanana Terrane; their erosion likely contributed to the Klondike placer deposits. These are narrow, high-grade deposits; typical is the Pogo Mine in Alaska with total reserves and resources of 4.9 Moz Au at 12.45 g/t Au. They may be high grade, epithermal or mesothermal, structural end-members of the intrusion related gold model rather than typical orogenic veins.



- Skarns; like the Ray Gulch Tungsten Skarn at Dublin Gulch and a small skarn southeast of the Roop Lakes Stock.

## 7.0 Description of MLM's 2018 Work

MLM contracted Dahrouge Geological Consulting Ltd. (Dahrouge) of Edmonton AB to complete ground magnetic surveys at Trail-Minto and Roop-Carlin (Figure 9). Orientation and layout of mag lines were designed by MLM personnel. Work was completed on Trail-Minto from October 10<sup>th</sup>-16<sup>th</sup>, and on Roop-Carlin October 17<sup>th</sup>-20<sup>th</sup>, 2017. Daily

Dahrouge's crew was based out of Mayo for the duration of work. The workers mobilized to carry out the mag survey were Jack Krykow and Andrew Shumilak of Dahrouge who were also responsible for post processing and normalizing data. Survey planning was carried out by Tyrell Sutherland of MLM.

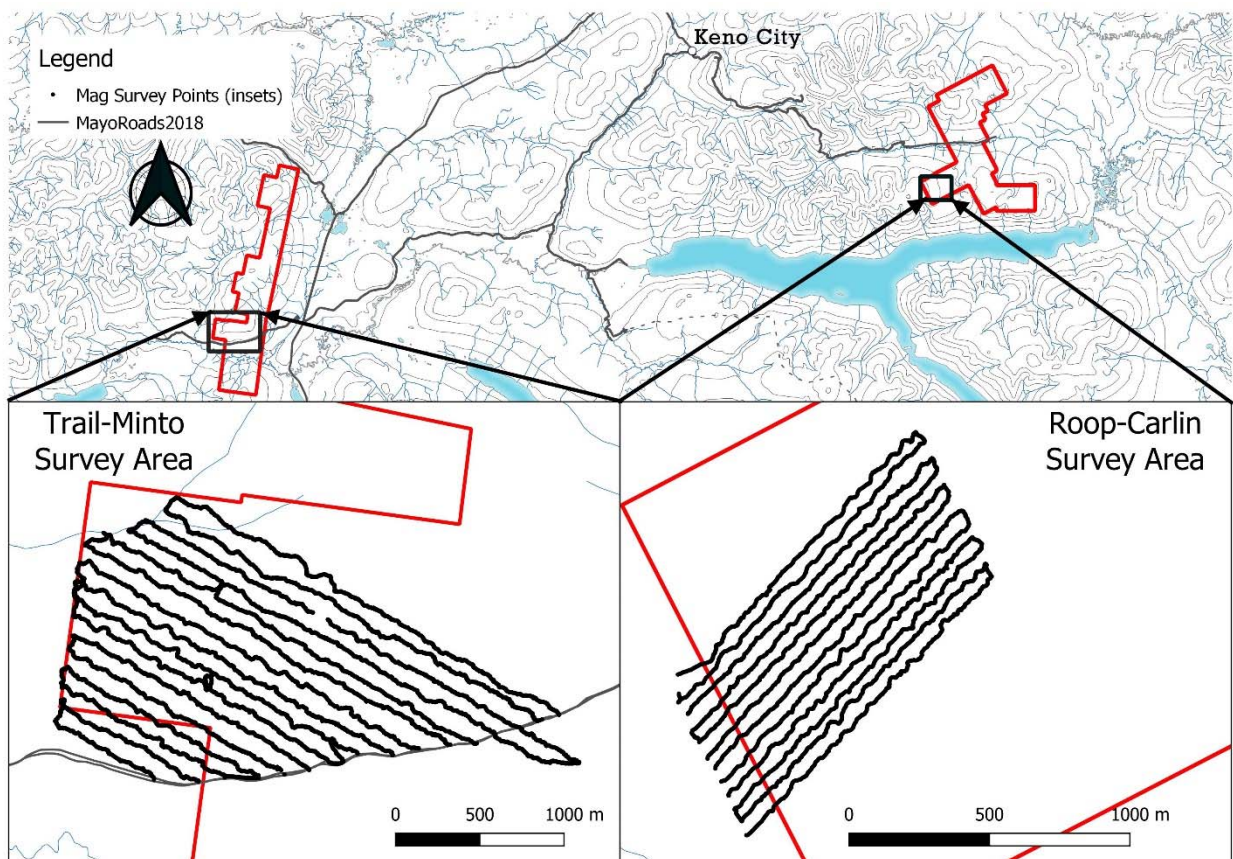


Figure 9: Location of walking lines for magnetic survey.



## **7.1 Mag Surveys**

A single survey area was completed on both Trail-Minto and Roop-Carlin. The Trail-Minto survey area was accessed via the Minto Lake Road and daily traverses were completed from there. The Roop-Carlin Survey area was accessed via helicopter and was subject to safe weather conditions for flying. During the surveys Dahrouge utilised two magnetometers, a roving unit and base station to correct for diurnal variations.

The magnetometers used are two GEM GSM-19 Overhauser magnetometers with the following specifications:

Sensitivity: 0.022 nT @ 1 Hz, (0.015 nT option)

Resolution: 0.01 nT

Absolute Accuracy: +/- 0.1 nT

Dynamic Range: 20,000 to 120,000 nT

Gradient Tolerance: Over 10,000 nT/m

Sampling Intervals: 60+, 5, 3, 2, 1, 0.5, 0.2 sec

The rover unit also included an integrated (OEMStar)GPS.

## **7.2 Trail-Minto**

Sixteen walking lines were completed within the Trail-Minto survey area. These ranged in length between 0.6km to 2.9km and were spaced 100m apart. The lines are oriented at 103° azimuth so that most lines intersect the road and cut across the long axis of the Roaring Fork Stock as well as most interpreted structures from an earlier airborne geophysical survey.

## **7.3 Roop-Carlin**

Twelve walking lines were completed within the Roop -Carlin survey area. These lines were ~1.3km long and spaced 50m apart. The lines are oriented at 65° azimuth so that most lines intersect the dominant fabric

observed from an earlier airborne magnetic survey as well as a strong geochemical anomaly that appears to cut the fabric observed from the airborne magnetic survey.

## 8.0 Observations and Results

Gridded interpolations of corrected total magnetic intensity for both grids are shown in figure 10.

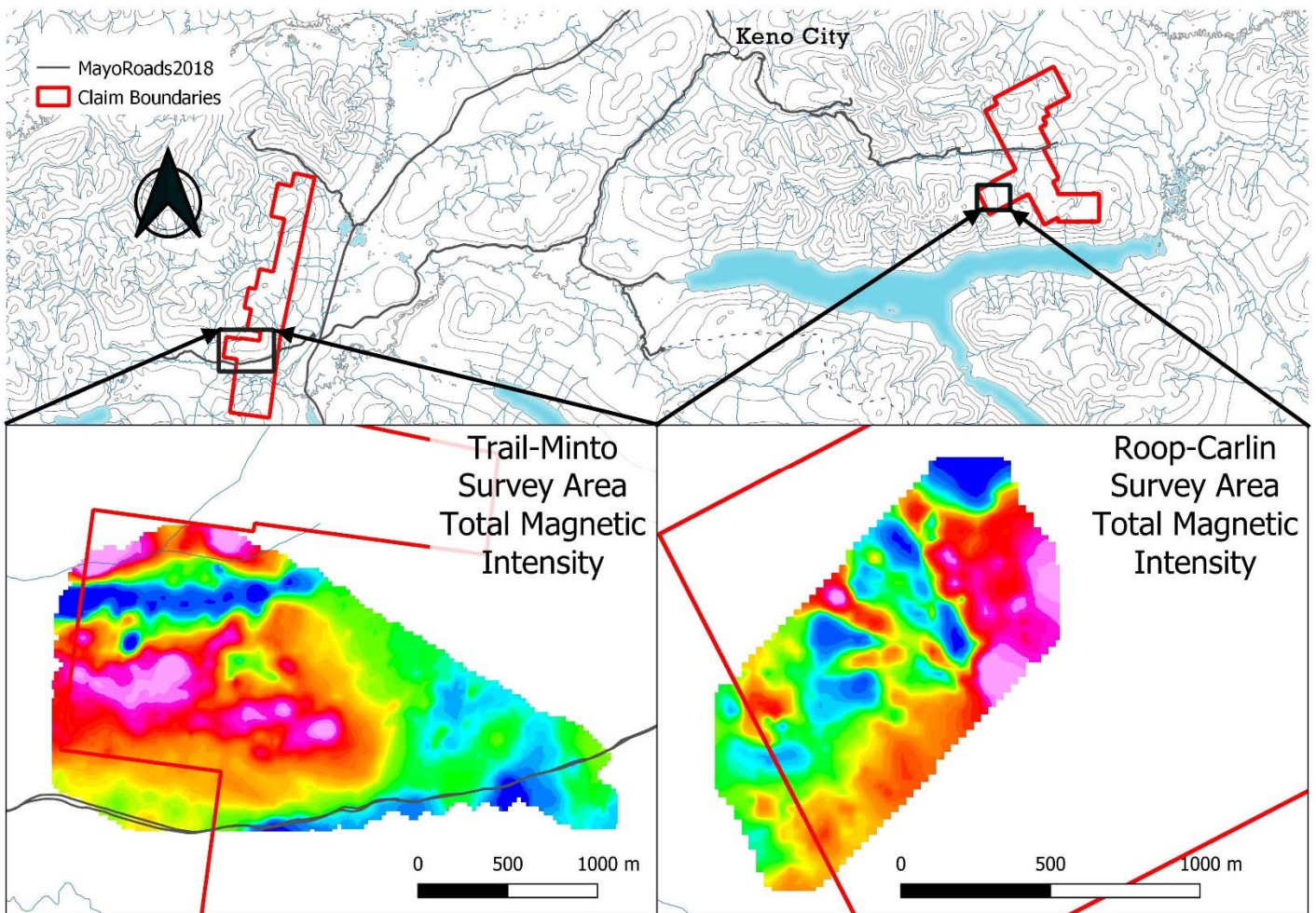


Figure 10: interpolations of total magnetic intensity for Trail-Minto and Roop Carlin survey areas.

### 8.1 Trail-Minto

The data collected during this survey closely matches the airborne data, but has greater resolution. The mag low at the eastern edge of the grid is likely the Roaring Fork Stock. An east-west oriented mag low at the northern part of the survey area was also well defined in both magnetic surveys.

## **8.2 Roop-Carlin**

The data collected during this survey matches the airborne mag moderately well. The tighter spacing provides higher resolution showing features not visible within the airborne mag survey. There is no evidence of the mag high along the southern boundary of the survey in the airborne magnetic survey, so it is likely an edge effect. The very strong high in the eastern corner is visible in the airborne survey and measurements of this are what likely lead to the high edge effect along the southern boundary of the survey.

## **9.0 Discussion**

### **9.1 Roop-Carlin**

The northwest trending feature in the central portion of the survey area (figures 10 and 11) corresponds to a strong northwest trending Ag in soil anomaly with value between 2 and 45ppm Ag in soil. These are likely both resultant from a single structure the apparent offset in the mag is common in total magnetic intensity plots whereby anomalies are shift slightly north due to the earths magnetic field. The structure likely dips to the east evidenced by the change in orientation of the geochemical anomaly from NNW to NW coincident with the change in slope. It is probable that the bedrock structure trends almost due north placing it within the group of “Transvers Veins” which contain the majority of economic mineralization within the Keno Hill Camp.

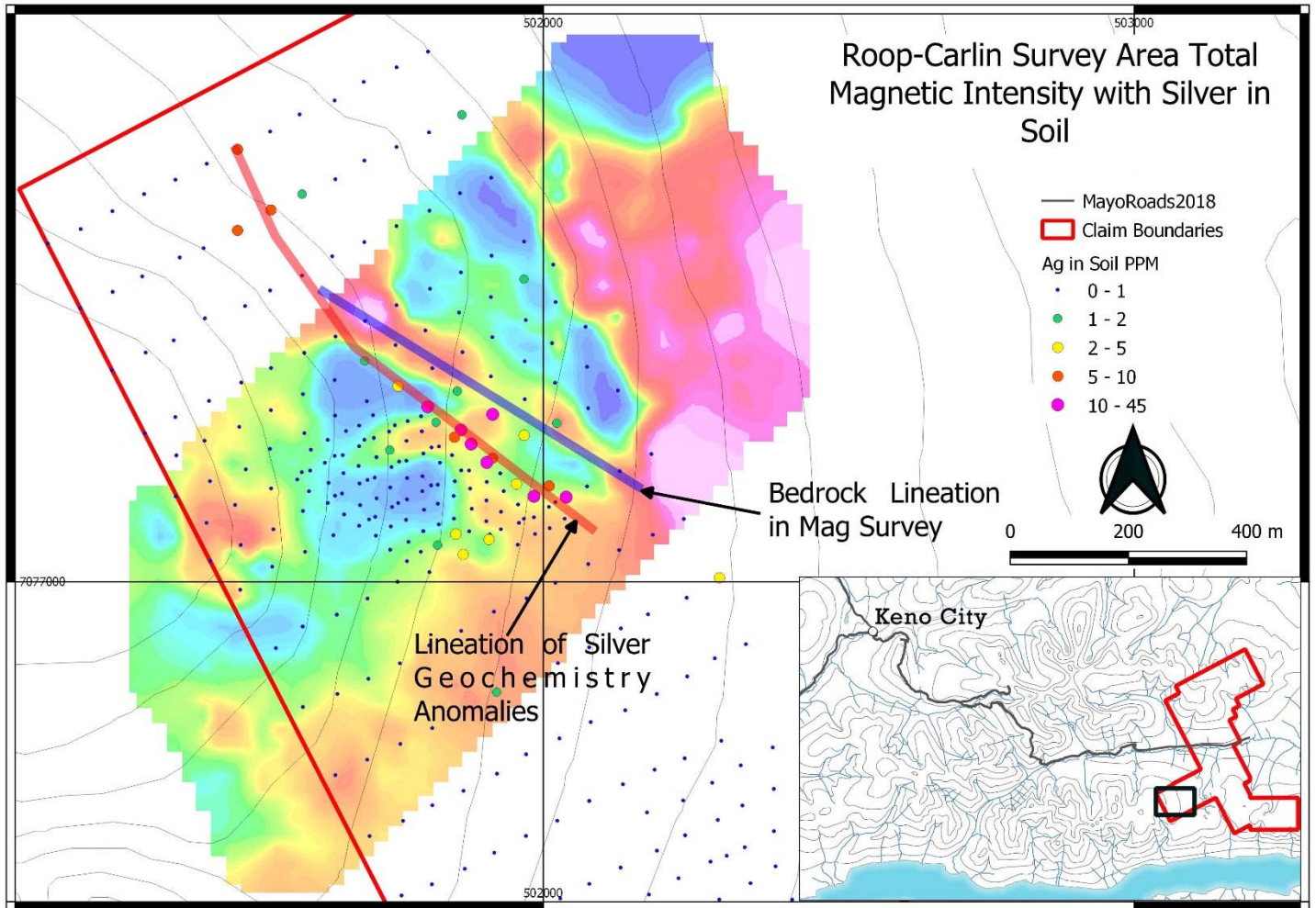


Figure 11: Roop Carlin survey area with plot of Ag in soil analysis.

## 9.2 Trail-Minto

The mag survey within the Trail-Minto Survey Area emphatically confirms the airborne geophysical survey. The margins of the stock are sharper and possible apophasies are more pronounced in the ground survey. Many potential apophasies appear to coincide with scattered groups of anomalous gold in soil values (Figure 12). Gold mineralization associated with intrusion related systems is generally focused around margins and apophasis. Accurately defining these apophasis could be a major tool to vector to gold mineralization.



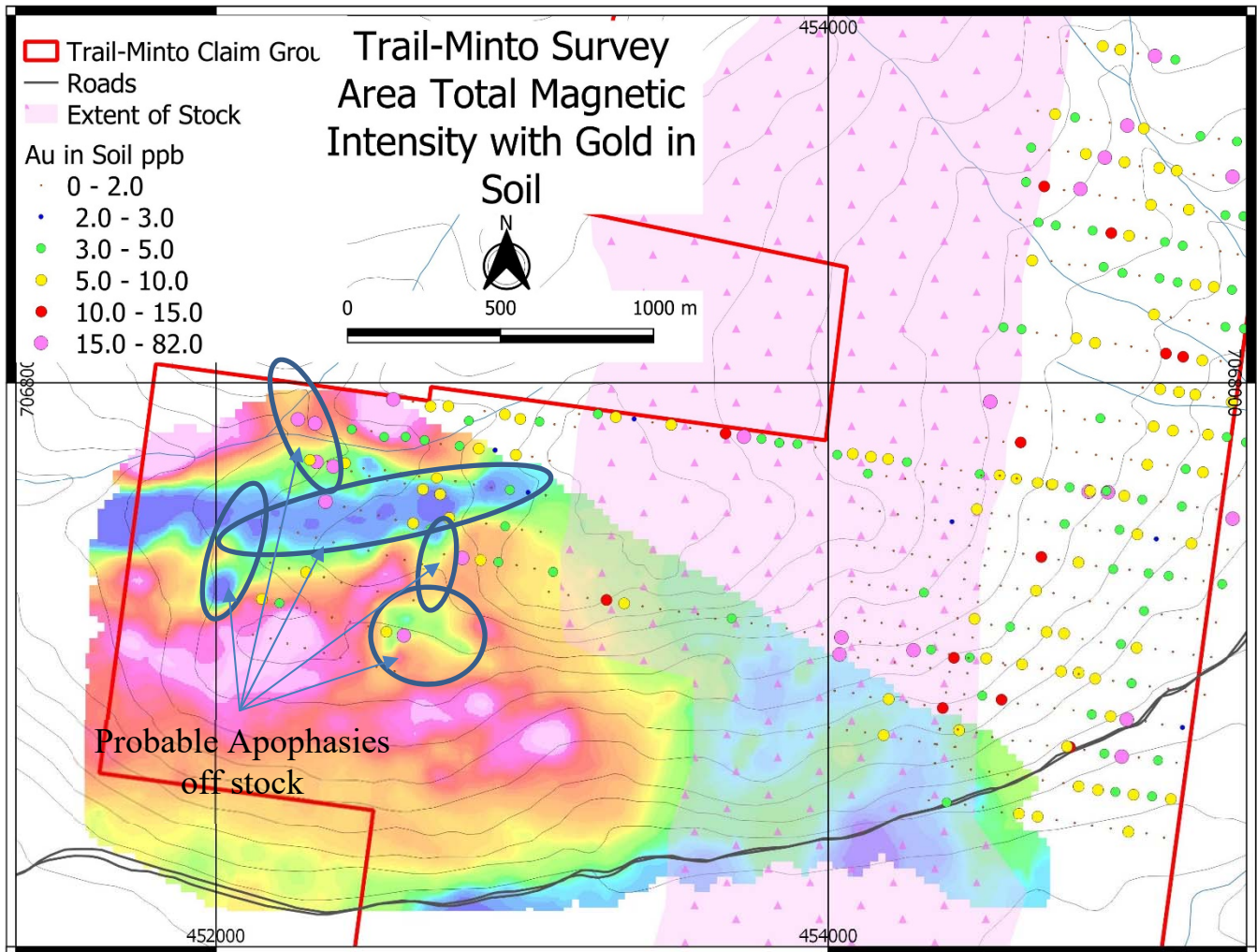


Figure 12: Trail-Minto survey area with plot of Au in soil analysis.

## 10.0 Conclusion and Recommendations

### 10.1 Roop-Carlin

Results to date from the MLM's sampling programs and earlier silt and soil sampling and geophysics provide strong evidence that a significant source of silver mineralization is present on the Property. This is to be expected due to the long history of silver exploitation in the Keno Camp.

Within the Carlin soil grid primary pathfinders are As, Sb, and Pb which suggest an underlying vein system is present over a strike length of 400m to >1000m. The abundance of Ag in soil in association with other

with other vein pathfinders and features visible in the Roop-Carlin magnetic survey suggests that this vein system is probably a Transverse KHTV.

## **10.2 Trail-Minto**

Results to date from the MLM's sampling programs and earlier silt and soil sampling and geophysics provide strong evidence that a significant source of gold mineralization is present Trail-Minto. This is to be expected because of the placer operations along creeks and the strong gold in heavy mineral concentrates anomalies in streams lying downstream.

## **10.3 Recommended Future Exploration**

The strong silver anomaly within the Roop-Carlin survey area warrants significant trenching to determine the nature and intensity of bedrock silver mineralization. This should be followed by drilling if there is indication of potentially economic silver mineralization. The KHTV further defined by this program appears open to the north and east and soil sampling on a 60m by 30m grid should be completed to further delineate its extent.

Review of the geology, geophysics and geochemistry indicate that gold in soil anomalies and their underlying sources extend well beyond the limits of the present sampled areas. Shallow fluvial silt and sand layers on the Trail-Minto claim group and cryoturbation and mass wasting on the Carlin claim group are posing considerable difficulties to distinguishing bedrock signatures. For general vectoring to anomalous areas, regolith geochemical sampling is an effective method on these claim groups. However, for defining drill targets future projects should focus on sampling material at or just below the bedrock interface.

1. Prospective survey areas are reasonably close to road access. This presents an opportunity for cost effective trenching utilizing mechanized equipment.
2. Percussion drilling on closely spaced holes or shallow scout drilling is warranted on identified targets from Carlin and Trail-Minto claim groups. Fire assay on sampling within defined targets may be warranted to accurately measure Au content.

Those parts of the Property showing prospectivity from previous geochemical investigation warrant follow-up geochemical sampling. Grid patterns can be biased towards geologic controls as presently understood. Unless the trends of mineralization can be clearly defined the recommended sampling grid is 60m by 100m for targeting and 30m by 30 m for detailing. Ground geophysics that will not be inhibited by high graphite content of the bedrock, such as VLF, should be tested for their effectiveness. Prior to drilling, mechanized bedrock interface sampling or trenching is warranted. Hand trenching would encounter difficulties with large blocks of colluvium and is not recommended for this reason. Scout drilling may be required to properly test anomalies as much of the terrain has been subjected to long periods of weathering under variable climatic regimes, which can lead to near-surface leaching of metals.

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## Appendix A

### Statement of Qualifications

Tyrell Sutherland M.Sc., P.Geo.

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I, T.B. Sutherland, M.Sc., do hereby certify that

- I am Vice-President of exploration of Mayo Lake Minerals Inc.
- I graduated with a B.Sc. Honors Specialization Geology, from the University of Ottawa in 2009. In addition, I have obtained an M.Sc in Geology from Queens University in 2016.
- I am a member in good standing of the Association of Professional Geoscientists of Ontario.
- I have worked as a geologist for approximately 10 years, specifically in mineral exploration, in Canada, Australia, Jamaica and China.
- I fulfill the requirements of a "qualified person" for the purposes of N.I. 43-101.
- To the best of my knowledge all data used in the preparation of the technical report titled "Final Report on the Trail-Minto and Roop-Carlin Properties Target Evaluation Module YMEP 18-066" is correct and of good quality. The technical information contained within the report was collected under my supervision and I was primarily responsible for its interpretation.
- Certain statements concerning the interpretations and discussion of the data maybe considered forward looking statements in that although conceived from the data as recorded to the best of my knowledge may prove in need of variation or changed to reflect changes or updates to the data.

Dated the 31<sup>st</sup> day of January 2019



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Tyrell Brodie Sutherland

## Appendix B

### Statement of Expenditures

#### Cost Break Down of MLM's 2018 Ground Geophysics Program

	units	Cost/ Unit	Total
<b>Personnel</b>	<b>Days</b>		<b>\$23,384.50</b>
Jack Krywko	15	\$590	\$8,850.00
Anderw Shumilak	14.3	\$590	\$8,437.00
Tyrell Sutherland	7	\$500	\$3,500.00
Patrick Kluckzny	2.25	\$880	\$1,980.00
Other	1.3	\$475	\$617.50
<b>Equipment:</b>	<b>Days</b>		<b>\$3,199.00</b>
Spot, Mag Unit, Computers, GPS, Rifle, first aid, Survival camp gear	15		\$3,199.00
<b>Vehicles</b>	<b>Days/month</b>		<b>\$1,688.54</b>
Truck half ton	8		\$900.00
Truck one ton	7		\$788.54
<b>Lodging</b>	<b>Days/month</b>		<b>\$4,222.40</b>
Meals			\$1,820.00
Hotels	15		\$2,402.40
<b>Field Expenses</b>			<b>\$2,201.86</b>
Gasoline			\$376.37
Field supplies: consumables, etc,			\$1,825.49
<b>Helicopter</b>	<b>hours</b>		<b>\$10,102.51</b>
Transnorth Jet Ranger + fuel	13	\$1,955.62	\$10,102.51
<b>Total</b>			<b>\$44,798.81</b>