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Keyed To : Technical Standards for Reporting Assessment Work Under the Provisions of the Mining Act, R.S.O. 1990, July 5, 2018

11. EXPLORATORY DRILLING BY CORE OR NON-CORE METHODS, INCLUDING DIAMOND OR CORE DRILLING, AND OTHER DRILLING SUCH AS PERCUSSION, REVERSE CIRCULATIONAND AUGER DRILLING

11.(i)

South Break Project

Claims 312375, 343853, 134888, 199600, 275061, 291641, 216065 and 214064

formerly known as
Claims L4217525, L4217526, L4217527

Eby & Otto Townships

NTS - 42 A/1
80°08'57"W 48°05'46"N
0563340E 5327400N
NAD 83 Datum Zone 17u

January 22, 2022
E. Marion

Table of Contents

Illustrations

Heavily altered and silicified core from about 20.5 meter depth
(core is 22 millimeters in width)

11. EXPLORATORY DRILLING BY CORE OR NON-CORE METHODS, INCLUDING DIAMOND OR CORE DRILLING, AND OTHER DRILLING SUCH AS PERCUSSION, REVERSE CIRCULATION AND AUGER DRILLING

A technical report in respect of exploratory drilling by core or non-core method, including diamond or core drilling, and other drilling such as percussion, reverse circulation and auger drilling, shall:

(i) contain a title page, with the name of the technical report, the property name, the date of completion of the report, and clearly identifying the author(s);

(ii) contain a table of contents and a list of illustrations, including figures, tables, maps, appendices (logs, assay certificates, etc.);

(iii) contain a summary section,

- **a. summarizing the work program(s) that is being reported;**
- **b. stating the dates during which the work was performed in the field, and giving the number of days spent in the field;**
- **c. including a statement indicating the objective(s) of the work program(s);**
- **d. identifying who performed the work;**
- **e. identifying who the work was performed for;**
- **f. describing the physical activities undertaken and how the work site was rehabilitated (if applicable);**
- **g. including a summary of the results, conclusions and recommendations;**
- **h. indicating the co-ordinate system used to locate the area of work such as geographic (latitudes and longitudes) or Universal Transverse Mercator (UTM). Include the Datum and Zone when reporting locations using Global Positioning System (GPS);**

(iv) identify the mining lands on which the drilling work was performed, using the Township name, the cell number(s) on the Provincial Grid, as well as the claim numbers, lease numbers, Licences of Occupation numbers or Patent numbers, and identify the ownership of the land;

(v) identify the means of access to the land from the nearest population centre;

(vi) contain a key map showing the land drilled in relation to identifiable topographic features and township boundaries or established grid lines, stations or markers;

(vii) summarize the history of the property, with prior property ownership, historical exploration and past development or production;

(viii) provide a concise description of the regional and local geological settings of the property;

(ix) describe the mineral deposit type or commodity being explored and the geological model(s) and/or concept(s) being applied; also provide the reason(s) for the exploration work type performed;

(x) provide the number of any applicable exploration permit issued or exploration plan filed pursuant to O. Reg 308/12;

(xi) indicate the number of holes drilled and the total length of drilling;

(xii) indicate the start and end dates of the drilling program;

(xiii) provide a summary table, specifying for each drill hole,

- **a. the drill hole number or wedge number;**
- **b. the drill collar location using UTM coordinates (with Datum and Zone);**
- **c. the drill hole azimuth and dip;**
- **d. the drill hole or wedge length;**
- **e. the number of samples collected;**
- **f. the number of samples assayed;**

(xiv) give an interpretation of all the field exploration work performed, analytical (xiv)and testing data and other relevant information, discussing the value of the work with respect to leading to the success or failure of the program, and discussing whether the program met its original objectives; If a computer-generated model was created as part of the interpretation process for the field work performed, provide details of the modelling software, method and input parameters;

(xv) provide the details of any recommended work programs to further evaluate the property or prospect, as well the anticipated costs to do this work;

(xvi) contain a detailed list of all references cited in the technical report;

(xvii) provide a dated and signed certificate of qualifications from the author, or provide a signature page with a signed and dated Stamp for authors registered with a professional organization (P.Eng, and P.Geo);

(xviii) include drill hole logs,

a. identifying the hole by number;

b. giving the cell number(s) on the Provincial Grid, the mining claim numbers, lease numbers, Licences of Occupation numbers or Patent numbers on which the hole is drilled;

c. indicating the location of the drill hole collar with UTM coordinates (with Datum and Zone), and, if available, in relation to grid line co-ordinates;

d. indicating the dip/inclination and azimuth of the hole;

e. indicating the size of the core, or the diameter of the drill hole if bored other than by core drilling;

f. stating the start and completion dates of the drilling;

g. stating the name of the drill contractor;

h. stating the storage location of the core or drill sample material;

i. indicating the thickness of overburden in the core drilling holes and other boreholes where this data can be ascertained;

j. indicating if the casing was left in place and method of capping;

k. indicating if the hole was abandoned due to rock or technical reasons;

l. indicating if the hole encountered artesian conditions and whether sealed or valved;

m. describing all geological units encountered in terms of their thickness, composition, colour, texture, structure, grain size, degree of sorting, mineralization, alteration, degree of metamorphism, and bedding;

n. indicating the total length of penetration of the drill hole in bedrock and unconsolidated material;

o. indicating the location and type of all samples taken for assay or physical tests, using the core length intervals, and providing their identification numbers;

p. stating the date of completion of the log;

q. containing the printed name of the author of the log;

r. providing a legend of all symbols or abbreviations used in the logs;

s. including assay values for sections assayed with certificates of analysis;

t. in cases of overburden drilling designated specifically to sample unconsolidated materials, describing the stratigraphy of the materials encountered as to type of material, thickness, colour, texture, structure, grain size, degree of sorting and mineralization, and describing the type of bedrock penetrated, if reached;

(xix) include a drill plan,

a. showing a graphic or bar scale and the north direction;

b. showing grid co-ordinate lines using latitude and longitude or UTM Eastings and Northings (include the Datum and Zone);

c. providing a descriptive list of all abbreviations, short forms or symbols;

d. showing topographic features such as elevation contours, lakes, streams, ponds, wetlands, the local watershed if known, and infrastructures such as railways, roads, trails, power lines, pipelines and buildings;

e. showing the Provincial Grid cell boundary lines, the mining land boundary lines, township boundary lines;

f. showing the cell number(s) on the Provincial Grid, the mining claim, lease, patent or parcel numbers of all mining lands on which drilling work was performed;

g. showing the coverage of any applicable exploration plans and/or permits;

h. showing the location of drill hole collars;

i. showing the projection of the drill hole(s) to surface;

j. indicating the drill hole numbers;

k. indicating the azimuth, dip, and length of all drill holes; and

(xx) include a drill hole section,

a. showing a graphic or bar scale;

b. showing coordinate lines corresponding with those shown on the drill plan;

c. providing a descriptive list of all abbreviations, short forms or symbols;

d. showing mining land boundary lines, township boundary lines;

e. showing the mining claim, lease, patent or parcel numbers of all mining lands on which the drilling work was performed;

f. showing the coverage of any applicable exploration plans and/or permits;

g. showing the overburden, rock types or type of material intersected;

h. showing the location of the unconsolidated materials, mineralization, and structures designated by code or symbol;

i. containing a legend for codes or symbols corresponding to unconsolidated materials, mineralization and structure;

j. indicating the number, dip/inclination, azimuth, and length of the drill hole;

k. including assay values and/or assay averages.

(iii) SUMMARY

a. This report documents the extension of a previously drill hole in Otto Township, Larder Lake Mining Division.
b. The drilling and related activities were performed on June 14, 15, 16, 17, 18, 21, 23 and September 11 and 19 of 2020. A total of 8½ field days equivalent were spent on the extension drilling program
c. The drilling program was undertaken to sample across the width of the hand stripped work area as well as sample under the adjacent till covered area.
d. The work was performed by Louis Despres and Eric Marion.
e. The work was performed for the claim holder.
f. All equipment had been dismantled into 10 to 15 kilogram loads which were carried 1 kilometer through the bush by hand. Once enough tools and pieces were on site re-assembly began and then anchoring and set up was done. The balance of days hauling materials were used hand stripping at site 7 which will be the subject of a separate subsequent submission.
g. The drilling intersected heavily altered mafic volcanic rock displaying intense silicification and 5% average disseminated sulphide mineralization. It was reccommended to continue the hole beyond the alteration if possible. It is reccommended to undertake geochemical studies of sample materials taken from the hole.
h. Both longitudes & latitudes and Universal Transverse Mercator coordinates are supplied in the report. Utm coordinates given are in NAD 83 Datum. To avoid complication, all depictions of workings or exploration features have been generated from the cut grid transposed straight onto the MLAS maps using the perimeter shape as depicted online, and assigning MLAS based utm coordinates generated from the MLAS map information measure distance feature and the coordinates widget. Actual field evidence may differ.

(iv) CLAIMS

The project area consists of 3 former ground located mining claim units in Temiskaming District, in the subdivided Townships of Eby and Otto, recorded on Plan M-0345 of Eby Township and Plan M-379 of Otto Township. The legal descriptions of the aloquoit parts claimed are as follows:

CL#4217525-- Lot 12, Consession 6, SouthWest ¼ of North ½ Otto Township ~14hectares
CL#4217526-- Lot 1 Consession 6, SouthEast ¼ of North ½ Eby Township ~16hectares
CL#4217527 Lot 1 Consession 6, SouthWest ¼ of North ½ Eby Township ~16hectares

New MLAS Tenure Identification designations and approximate land descriptions* are now as follows:

Tenure I.D.
CL#312375-- pt. Lot 1 Consession 6 SW¼ of N½ Eby Township part grid cell # 42A01G335
CL#343853-- pt. Lot 1 Consession 6 SW¼ of N½ Eby Township
+ pt. Lot 1 Consession 6 SE¼ of N½ Eby Township part grid cell # 42A01G336
CL#134888-- pt. Lot 1 Consession 6 SE¼ of N½ Eby Township
+ pt. Lot 12 Consession 6 SW¼ of N½ Otto Township part grid cell # 42A01G337
CL#199600-- pt. Lot 12 Consession 6 SW¼ of N½ Otto Township part grid cell # 42A01G338
CL#275061-- pt. Lot 1 Consession 6 SW¼ of N½ Eby Township part grid cell # 42A01G355
CL#291641-- pt. Lot 1 Consession 6 SW¼ of N½ Eby Township
+ pt. Lot 1 Consession 6 SE¼ of N½ Eby Township part grid cell # 42A01G356
CL#216065-- pt. Lot 1 Consession 6 SE¼ of N½ Eby Township
+ pt. Lot 12 Consession 6 SW¼ of N½ Otto Township part grid cell # 42A01G357
CL#214064-- pt. Lot 12 Consession 6 SW¼ of N½ Otto Township part grid cell # 42A01G358

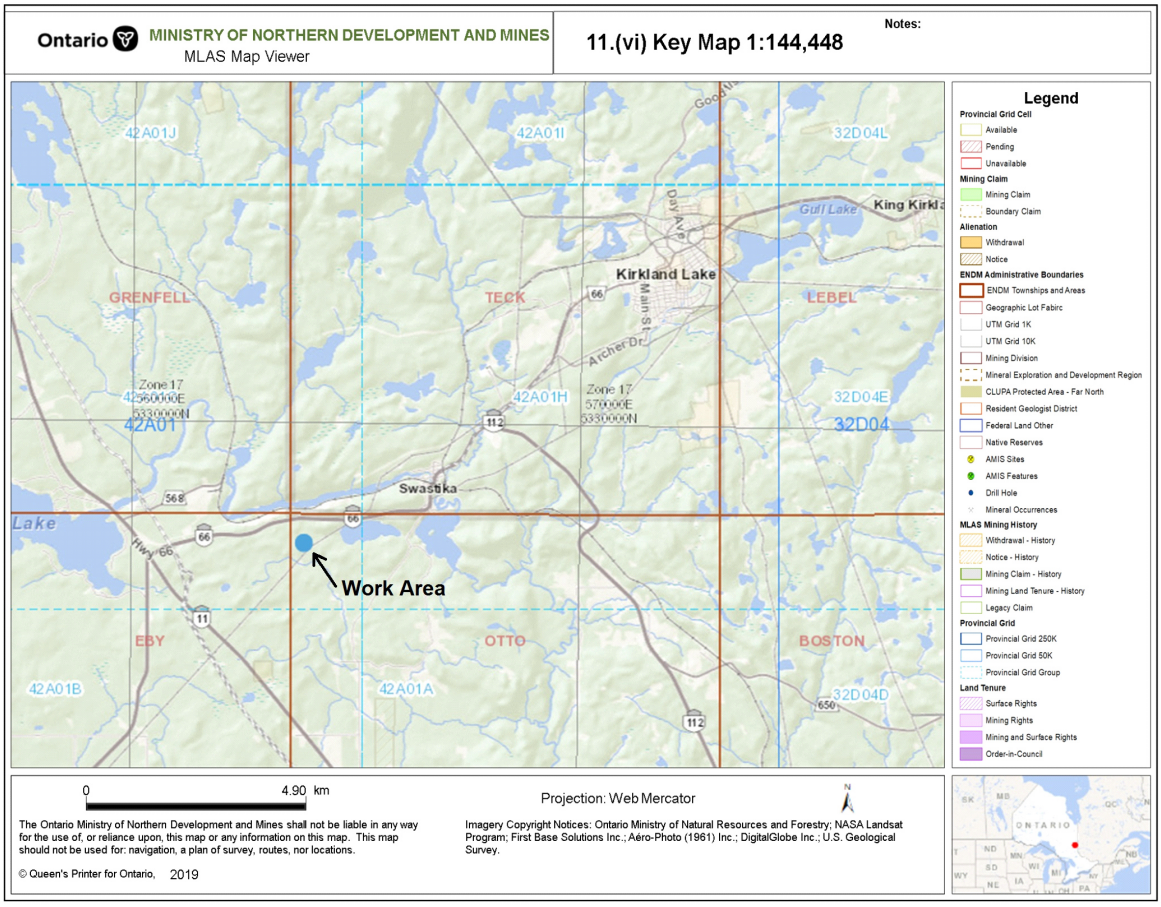
This particular work was performed on L4217525 on part of the South West ¼ of the North ½ of Lot 12 Concession 6, Otto Township laying in utm cell # 42A01G338 now identified with tenure identification 199600, registered 100 percent to the author

*It is important to note that the surface rights surrounding the project area are defined by the aloquoit units of the subdivided townships and existing land survey. The online cell geospatial data depicting location and extent of the local patents and leases conflicts with the abundant pre-existing land survey evidence. To avoid trespass as well as performance of work on someone elses land great care must be taken to ensure the real locations are field defined by referencing the survey rather than depictions provided on the MLAS system.

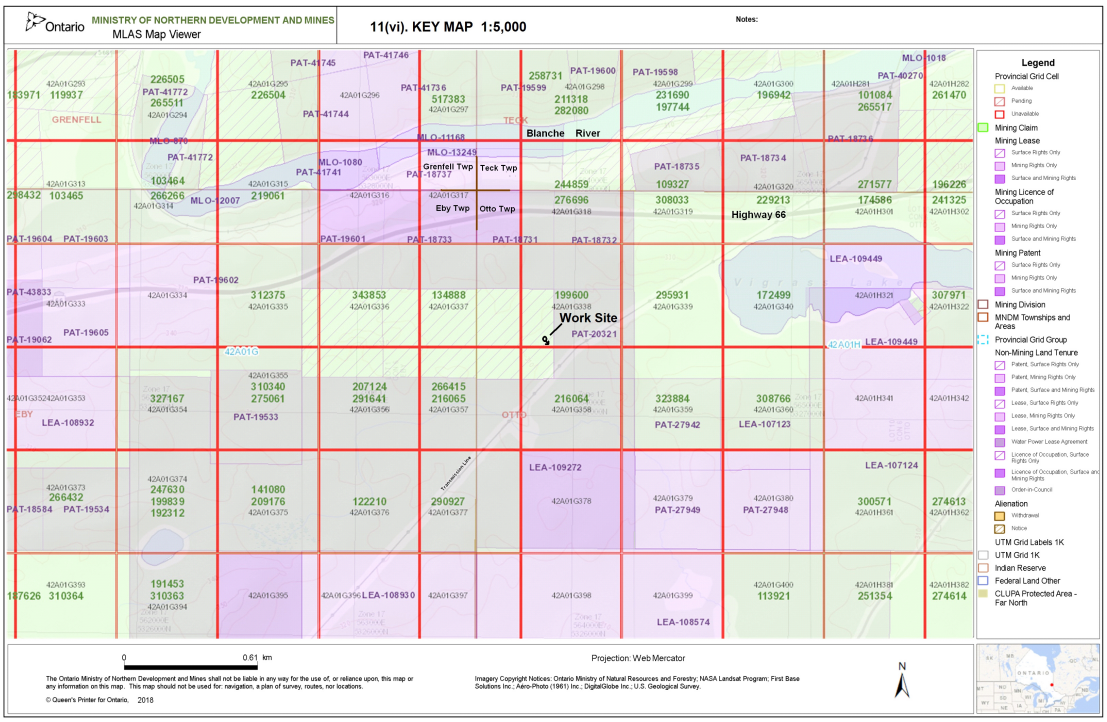
(v) ACCESS

Heading west south west on Highway 66 from the railway underpass in Swastika for 4.4 kilometers will bring you to the area where Highway 66 goes across the north west corner of L4217527. 800 meters east of this point, the Eby-Otto Township line is cut out and provides walking access to the claims at that area.

(vi) KEY MAP



(vi) a KEY MAP



(vii) HISTORY

Undoubtably the claim area was looked at by many prospectors in the early part of the 1900's as the Swastika Camp and then the Kirkland Lake Camp were being opened up and gold discoveries were drawing many to the area. There are many smaller deposits and showings in the Swastika and Kirkland Lake areas that have been explored with shafts and may have had minor production in the past. No submitted assessment work on file for the mining lands forming the South Break group of claims exists. No mention of these lands was found in any records or files currently within the Ministry of Mines geological database. These lands were brought to patent in 1927 and the mining rights remained with the patent until the June 1 2001 opening when the current claim holder ground staked the claims.

(viii) REGIONAL GEOLOGY

This claim lays within the Abitibi Greenstone Belt, a region of predominantly Archean volcanic rocks and related interflow sediments at the south central region of the Superior Province.Several eras of intrusion and deformation have affected most of the lithologies present. The Abitibi belt in the Kirkland Lake area is subdivided into a series of assemblages referred to as Groups in order of decreasing age; Larder Lake, Kinojevis, Blake River, and Timiskaming Groups (Stevenson et al 1995). The historical names of these groups in the Timmins and Kirkland Lake areas was changed by Ayers, et. al. (2005) to unify the lithologies chronologically according to the vast numbers of age dates available.

The round Lake batholith, a large Archaen aged granitic intrusive occurs about 6 kilometers to the south-west. The south east of the claim group is the "Otto Stock", an almost circular, somewhat zoned mafic(sanukitoid?) intrusive of some 10 kilometer diameter. Thin bands of clastic sediments and iron formation belonging to the older Skead group trend east-west through the map area and wrap around the Otto Stock. To the south-west of the claim group, a roughly 10 kilometer wide north-south finger of Huronian aged sediments filling a paleo depression of probable structural origin overlie the volcanic rocks. Field work by the Ontario Geological Survey has shown LCDZ strain and faulting affecting these much younger overlying sediments.

The Temiskaming Rift is a regional graben feature strinking at about 330° across this part of Ontario. It has been proposed since at least the early 1960's that this young rift system has a control association with diamond bearing intrusives such as kimberlites found in the Kirkland Lake region. Several NNW-SSE trending fault features passing through the area have been identified as probable Temiskaming Rift associated features.

The Abitibi Belt is host to many large gold and base metal deposits on both sides of the Ontario-Quebec border along structural trends that have an exploration history going back well into the 1800's. These major structural deformation zones, (locally the Larder-Cadillac Deformation Zone or LCDZ), parallel each other west to east across the belt and have acted as a control on gold deposition. In the Larder Lake section, gold mineralization is generally associated with carbonatized ultramafic rocks along the LCDZ. In this section, band of altered mainly fluvial sediments of Temiskaming age, folded and upturned to a near vertical position, coincides with the main structural trend of the LCDZ.

The Kerr Addison deposit, which produced almost 11 million ounces of gold, is situated along the Larder Lake Cadillac Break in the town of Virginiatown approximately 45 km to the east of the South Break claims. The host lithologies for the mineralization include pillowed mafic flows and spinifex textured komatiite flows cut by lamprophyre dikes that have been strongly altered.

Around Kirkland Lake gold mineralization occurs in sheared syenitic intrusions, trachytic flows and sedimentary rocks along the Kirkland Lake Fault. The gold deposits of the Kirkland Lake area's "mile of gold" formed within the Timiskaming
Group of sediments, trachytic volcanics, and alkali intrusives. They are located along the Kirkland Lake Main Break and subsidiary structures that are centred on a syenite porphyry mass but also cut the Timiskaming sediments and tuffs as well as smaller mafic and felisic syenite intrusives.

Other former producing mines clustered around the Dobie area, located approximately half way between the Kirkland Lake mines and the Kerr Addison deposit, include the Upper Canada, Upper Beaver, and McBean deposits. These all occur in different geological assemblages despite the fact that they are all clustered within a 10 km radius of each other. The McBean deposit occurs within a green carbonate altered ultramafic package intruded by felsitic dikes, somewhat similar to the Kerr Addison associated with the Larder Lake- Cadillac Break, whereas the Upper Beaver probably represents a magmatic related gold- copper deposit associated with a composite mafic intrusive and series of syenite porphyry dikes (Masson, 2012). The third of these deposits, the Upper Canada Mine, lies within the Timiskaming Group trachytic volcanic and sedimentary package. It appears to be related to strong albitite alteration associated with a possible splay from the Larder Lake Cadillac Break.

It should be noted that the structures on which almost all of the major mines are situated exhibit a common orientation (strike) of about 065 - 075 degrees, however there are also many gold enriched subsidiary faults that parallel or roll into the major structures.

The Macassa Mine is the last operating producer of the historic Kirkland Lake camp which has produced in excess of 28 million ounces of gold has its #3 shaft located about 1200 meters north - north - east of the South Break claims. There it is on the east side of the Amikougami Fault which is a later, displacing cross fault. Although

there have been several postulated correlations of the economic faults to fault or vein features to the west of this north south fault,no economically encouraging "ore blocks" have been defined to the west of the Amikougami Fault. Available geologic reports and publications appear to have differing information and estimation of the amout of and direction of off-set by the Amikougami Fault. The east-north east trending Kirkland Lake Break is mapped as merging with the Larder Cadillac break about 400 meters north - north - west of the the project claims.

LOCAL GEOLOGY

O.D.M. Map M-2239 of Eby Township shows the three claim units to be underlain by volcanic rocks of basalt composition. And east-west zone of heavy carbonate alteration following sheared volcanics is mapped across the length of the claims. To the east of the South Break claims, drilling by Battle Mountain Gold in joint venture with Queenston Mining in the 1985 to 1995 time period encountered sporadic gold values in limited diamond drilling done on the aparant strike extension of this feature. This fault lines up with a similar fault described in the report on the "Baldwin" property which is contiguous with the westboundary of the South Break claims. The following report of the Baldwin Mine property is reproduced from the report of GL Holbroke in 1946 and gives a good summation of the local geology and style of mineralization likely to be found .

REGIONAL GEOLOGY

Starting many miles east of the interprovincial boundary, in Quebec, a belt of Temiskamlng age sedimentary rocks with interbedded lavas, from one to four miles wide, extends at least 60 miles westward into Ontario, where it passes through the Larder Lake, Kirkland Lake, Swastika, Matachewan and Midlothian areas. This bclt probably represents one limb of a major geosyncline enfolded with the unconformably underlying complex of older Keewatin basic lavas and intrusives. It is intruded in many places throughout it's length by numerous dykes and irregular masses of medium to acid rocks of Algoman age and is occasionally blanketed by younger, flat lying, Cobalt age sediments.

The economic signiligance of this geologic feature is easily appreciated when it is realized that a large percentage of the gold production of Canada comes from structures in, or very near, this belt of Temiskaming rocks.

In recent years. detailed geologic mapping of parts of this Important area has indicated what is probably the main structural control of gold deposition. It has been shown that a major fault and shear zone closely follows the south contact of the Timiskaming rocks for over forty miles from the Matachewan area to the Quebec boundary, and the same zone has been traced for a further distance eastward of over 100 miles throughout the Cadillac, Malartic and Bourlamaque aeas of Quebee. In Ontario this zone is known as the "Larder Lake Break" and is thought to be the main structural control of gold deposition throughout the area. It consists of a wide zone of shearing and alteration that follows a sinuous course across the country with a general East-West trend and steep dips. For much of its length it is marked by a wide zone of carbonate alteration accompanied by silicification and sulphide mineralizatlon. At certain places, where local conditions are favourable, important gold deposits, such as those of the Kerr Addison Mine, have bee formed. Numerous shear and fault zones are found throughout the length of the Temiskaming belt and it is thought many of these are subsidiary structures developed from stresses set up by movement along the Larder Lake Break. Where these secondary breaks encounter sufficiently favourable conditions, gold deposits have been forrned. such as the "main break" at Kirkland Lake, the Upper Canada veins, ete. There are thus two main types of ore occurrence throughout the area, one occuring in the Larder Lake Break itself,and the othe in subsidiary structures or "breaks". Those in the Larder Lake Break are usually large but relatively low grade and are very sparingly distributed along the zone. Favourable conditions seem to be caused by local flexures in the shear zone and by drag folded areas in the nearby sediments or greenstones. Those in the subsidiary breaks are usually narrow but high grade and are frequenty found where the breaks cross relatively brittle rocks such as syenite or porphyry. Orebodies of both types are frequently displaced by later strike and cross faults.

(A) Rocks

The Baldwin property is located astride the south Temiskaming contact. To the south of the contact the rocks consist predominantly of intermediate to basic pillowed Keewatin lava flows with occasional narrow tuffaceous horizons along flow contacts. To the north of the contact they consist of Temiskaming conglomerates, grey wackes and tuffaceous rocks. Both series of rocks have been Intruded by lenticular bodies of syenite and syenite porphyry that are localized in and near the main contact area.

(B) Structure

The detailed geologic structure underlying the property has not as yet been worked out. The lavas to the south exhibit definite evidence of broad folding and some faulting. The sediments to the north show close drag folding, roughly parallel to the contact, plus minor cross faulting.

The main contact itself trends east-west across the NI/2 of Lot 2 Con. VI and NW¼ of Lot I, Con. VI, a distance of 4,000' and on the latter location shows a broad flexure or warping. In this area the main contact is strongly sheared and altered over widths of from 30' to 200' and almost certainly marks the position of the important Larder Lake Break. As elsewhere along its length it is probable that here too the Larder Lake Break represents a fault zone of major displacement. The Blanche River flows west-east across the length of the property parallel to, and about 800' north of, the main contact. The rocks on both sides of the river are Timiskaming sediments but while those to the south strike east-west, those to the north strike north-east. This disconformity must mark a fault of major displacement and, underlying the river bed, a supposition that is substantiated by the 2000' right displacement of two north-south trending diabase dykes as they cross the river near the east property boundary.

(C) Alteration, etc.

*The zone of strong alteration that marks the Larder Lake Break follows the sediment greenstone contact. In the mine area it lus been developed for an approximate length of 500' on one or other of three levels underground. Here it has an average width of about 50' and consists of an intense carbonization plus a moderate silicification and pyrite mineralization. The silicilication is best developed in and near syenite and porphyry bodies lying in the zone. Following the alteration the zone was fractured and the fractures filled by quartz veinlets and stringers running in all directions. This introduction of secondary quartz is frequently accompanied by coarse visible gold and apparently determines the location and shape of the orebodies. Approximately 1200' South of the Larder Lake Break a parallel zone of shearing and strong carbonate alteration cuts the greenstones across the south part of the property. Some secondary quartz is visible in this zone but no attempt has been made to investigate it and nothing is known concerning the possibilities.** The fault zone underlying the Blanche River has been investigated by one short diamond drill hole put in for assessment purposes. It shows a strong zone of shearing, carbonization. silicification and mineralization. Some secondary quartz veinlets were noted and several low gold values were obtained. (** South Break?-EM)*

ECONOMIC GEOLOGY

The main feature of possible economic importance on the property is the Larder Lake Break described above. As cited, the break crosses the property for 4,000' with an east-west strike and a steep south dip. It marks the location of a major zone of crustal weakness along which a series of fault movements has taken place over a long period of geologic time. Being a zone of weakness it has formed a locus of acid igneous intrusions and of alteration and mineralization. Where developed on the property it shows as a 50' wide zone of intense carbonization and silicification cut by later quartz filled fractures. Several relatively small syenite and porphyry masses and dykes are found throughout the zone and these show a rake of about 45° to the east down the plane of the zone. As described below, a limited amount of diamond drilling and underground development has outlined several small but rich gold ore-bodies lying in the zone and apparently associated with the more easily fractured syenite rocks. As with the intrusive bodies these ore shoots show a 45° east rake and it is probable that both are following some folded structure in the zone. There is a distinct flexure in the zone about 1,000' east of the shaft and it is likely that this has controlled the fracturing which allowed the introduction of secondary quartz and accompanying gold values. The underground work has also indicated the presence of a strike fault with a steep north dip cutting the zone a short distance above the 400' level. The displacement on this fault is such as to cause a fault gap of some 300' from above the 400' horizon to the 600' horizon. There is thus on this property a set of conditions that has resulted in the formation of important ore-bodies elsewhere in the Larder Lake Break, namely a flexure in the break and the intrusion into it of masses of acid igneous rock. Coupled with this the presence of rich, though small, oreshoots makes the exploration of this area of the break highly desirable and justifies extensive diamond drilling and underground development. In addition to tne Larder Lake Break this zone of shearing and alteration under the Blanche River has shown low gold values and should be further investigated by diamond drilling both from surface and underground. The carbonate zone to the south in the greenstone should also be investigated.

August 19, 1946. *G. L. HOLBROOKE. M.E.*

(ix) DEPOSIT TYPE / RATIONALE

Exploration is directed towards the discovery of pyritic quartz vein epithermal lode gold deposits hosted within altered mafic volcanic rock similar to the surrounding deposits along the Larder-Cadillac Deformation Zone. Drilling was chosen because the extent of alteration exposed in the 2018 hand stripping dips below overburden cover. Drilling will define the limit of the alteration and potentially cross hitherto unknown mineralized features. Similar subparallel veins that do not show on surface may be shown in the core.

(x) PERMIT NUMBER

PR-18-11258

(xi) HOLES AND LENGTH

One drill hole SB-01, was extended from 14.71 to a depth of 24.4 meters.

(xii) START AND END DATE

The drill program in the field began on 2020 06 06 and ended on 2020 09 20. Actual coring began on 2020 06 16.

(xiii) DRILL HOLE SUMMARY TABLE

- **a. name -** Drill Hole # SB-1
- **b. location -** 0563655E 5327462N, Datum NAD83, Zone 17u
- **c. bearing -** 140 degrees Azimuth (Astronomic)
- **d. dip angle -** minus 37 degrees, total depth - 24.40 meters (9.7 meters extension, this report))
- **e. sampling -** 4 sludge samples were collected during the drilling. No core has yet been selected for sampling.
- **f. assaying -** no sampling for submission

(xiv) INTERPRETATION / DISCUSSION

Drilling was suspended during the previous season due to mechanical reasons compounded by the hard silicified rock being cut, with the equipment sustained much wear and damage in having to operate at maximun to cut the rock. Different style diamond tools were located and purchased which would more closely match the rock conditions. It was necessary to ream the previously drilled portion of the hole to allow entry of the new tooling. This took over 2 days as the tools had to be fed ahead at the same rate as drilling. The new tooling performed better and drilling progressed well. The last day, core was left in the hole and during attempts to drill over the pieces, the roughness and jacking caused the rods to jam, instantly stalling the drive motor and shearing the flywheel. In September replacement parts were located and installed on the motor. One day was spent fishing the core from the hole and the equipment was left in a state of readiness to continue the program.

The field exploration geologically so far was successful in showing an at minimum 17+ meter wide silicified, pyritized alteration flanked by outcropping potassic altered, pyritic, quartz veined mafic volcanic rock which was otherwise not evident from surface. The drill hole led to the success of the program and so far results have exceeded the objectives of the program.

(xv) RECCOMMENDATIONS / COSTS

It is reccommended to continue the drill hole as deep as possible or at least to the limit of the alteration. The drill should then be rotated one hundred and eighty degrees and a hole drilled north to delimit the alteration on the north extent. Or, fan several holes through the mineralized breccia to determine geometries of the various features. It is anticipated to cost up to 25 days for two workers with associated costs which would place it up to twenty five thousand dollars in equivalent proportionate costs to complete.

(xvi) REFERENCES / RECCOMMENDED READING

Barnes, S.J., Gorton, M.P. and Naldrett, A.J.
1981:Platinum Group Elements in Abitibi Komatiites Associated with Nickle Sulfide Deposits; in Geoscience Research Grant Program, Summary of Research, 1980 to 1981, Ontario Geological Survey,Miscellaneous Paper 98, Grant 17, p. 1-12

Berger, B. R. Grabowski, G., Guindon, D.
2001, Ontario Geological Survey Open File Report 6070 Summary of Field Work and Other Activities 2001, Project Unit 10, Geological Reconnaissance along Highway 66

Burrows, A. G., and Hopkins, P. E.
1914: The Kirkland Lake and Swastika gold areas and Maisonville, Grenfell and Eby Townships; Ontario Bur. Mines, Vol. 23, pt. 2, 39p. Accompanied by Maps 23a, 23b, scale 1 inch to 34 mile.

Burrows, A. G., and Hopkins, P. E.
1923: Kirkland Lake gold area (revised edition); Ontario Dept. Mines, Vol. 32, pt. 4, p.1-52, (published 1925). Accompanied by Map 32e, scale 1 inch to 1/2 mile.

Burt, A.K. and Hamilton, S.M.
2004. A comparison of selective leach signatures over kimberlites and other targets; Ontario Geological Survey, Open File Report 6142, 179p.
Cooke, H. C.
1919: Exploration of the townships west of Kirkland Lake, Ontario; Geol. Survey of Canada, Summary Report, 1919, pt. E, p.l8E-19E, (published 1920).
Cooke, H. C.
1922: Kenogami, Round, and Larder Lake areas, Timiskaming District, Ontario; Geol. Survey of Canada, Mem. 131, 64p. Accompanied by 3 maps
Crocket, J.H. and Bowins, R.J.
1985:Rare Earth Element Properties of Archean Iron Formations and their Host Rocks- Some Results from the Temagami and Boston Iron Formations; in Geoscience Research Grant Program, Summary of Research 1984 to 1985, Ontario Geological Survey, Miscellaneous Paper 127, Grant 132, p. 10-14
Crocket,J.H., Blum,N., Hurley, R.,Bowins,R., McRoberts,G., Fyon,A., McNutt,R.H., Schwarcz,H.P. and Rees, C.E.
1984:Geological and Geochemical Studies of the Boston and Temagami Iron Formations and their Contiguous Volcanosedimentary Piles; in Geoscience Research Grant Program, Summary of Research, 1983 to 1984,Ontario Geological Survey,Miscellaneous Paper 121,Grant 132, p. 72-83
Crocket,J.H., Blum,N., Hurley, R.,Bowins,R., McRoberts,G., Fyon,A., McNutt,R.H., Schwarcz,H.P. and Rees, C.E.
1983:Isotopic and Geochemical Characterization of Archean Iron Formations and Associated Volcanic Rocks-Some Preliminary Results from the Temagami and Boston Iron Formations; in Geoscience Research Grant Program, Summary of Research, 1982 to 1983, Ontario Geological Survey,Miscellaneous Paper 113,, Grant 132,p.29-40
Dyer, W. S.
1935 : Geology and Ore Deposits of the Matachewan-Kenogami area; Ontario Dept. of Mines, Volume 44, part 2, pg 1 - 55, Accompanied by Map 44a, 1 inch to 1000 feet, and Map 44b, scale 1 inch to 1 mile
Fyon,J.A., Crocket, J.H., Schwarcz, H.P., Kabir, A., and Knyf, M.
1981: Trace Element and Stable Isotope Geochesistry of Auriferous Iron Formations in the Timmins Area; in Geoscience Research Grant Program, Summary of Research, 1980 to 1981, Ontario Geological Survey Miscellaneous Paper 98, Grant 49, p. 90-107
Fortescue, J.A.C. and Gleeson, C.F.
1984: An introduction to the Kirkland Lake (KLIP) Basil Till Geochemical and Mineralogical Study (1979-1982), Timiskaming District, Ontario Geological Survey, Map 80 714, Geochemical Series, Compiled 1984
Grabowski,G.P.B. and Wilson, A.C.
2005. Sampling lamprophyre dikes for diamonds: DiscoverAbitibi Initiative; Ontario Geological Survey, Open File Report 6170, 262p.
Guindon, D.L. and Reid, J.L.
2005. Regional modern alluvium sampling of the Kirkland Lake–Matachewan area, northeastern Ontario; Ontario Geological Survey, Open File Report 6124, 121p.
Hicks,K.D.,and Hattori, K.
1988:Magmatic-Hydrothermal and Wall Rock Alteration Petrology at the Lake Shore Gold Deposit, Kirkland Lake, Ontario; in Geoscience Research Grant Program, Summary of Research 1987 to 1988, Ontario Geological Survey, Miscellaneous Paper 140,Grant 313, p.192-204
Hattori, Keiko, and Levesque, G.
1989: Hydrothermal Activity in the Kirkland Lake Intrusive Complex, Temiskaming District, Ontario, in Geoscience Research Grant Program,Summary of Research 1988 to1989, Ontario Geological Survey, Miscellaneous Paper 143, Grant 313, p. 59-67
Jensen, L.S. and Langford, F.F
1983:Geology and Petrogenesis of the Archean Abitibi Belt in the Kirkland Lake Area, O.G.S. Open File Report 5455
Lawton, K. D.
1954: The Round Lake batholith and its satellitic intrusions in the Kirkland Lake area; unpublished Ph.D. thesis, University of Toronto, Toronto, Canada.
Lawton, K. D.
1957: Geology of Boston Township and part of Pacaud Township; Ontario Dept. Mines, Vol. 66, pt. 5, 55p.,
Lovell, H. L.
1969a: Geology of the Bourkes area, District of Timiskaming; Ontario Dept. Mines, Open File Report 5036 (typescript).
1969b: Otto Township and northern part of Marquis Township, District of Timiskaming; Ontario Dept. of Mines, Prelim. Geol. Map P.501, scale 1 inch to 1/2 mile. Geology1968.

Lovell, H.L.
1972: Geology of the Eby and Otto Area, District of Temiskaming, Ontario Department of Mines and Northern Affairs, Geological Report 99, Accompanied by Map 2239, scale 1 inch to 1/2 mile
Lovell, H.L. and Caine, T.W.
1970:Lake Temiskaming Rift Valley; Ontario Department of Mines, Miscellaneous Paper 39
Moore, J.C.G.
1966: Geology of Burt Holmes Area,District of Temiskaming,Ontario Department of Mines Geological Report 44, Accompanied by Map2078, scale 1 inch to 1/2 mile
O.G.S.
1979:Airbourne Electromagnetic and Total Intensity Magnetic Survey, Kirkland Lake Area, Morrisette Township, District of Temiskaming: by Questor Surveys Limited for the Ontario Geological Survey, Prelim.Map P.2258 Geophys. Ser., Scale 1:20,000, Survey and compilation February and March 1979
O.G.S.
1979:Airbourne Electromagnetic and Total Intensity Magnetic Survey, Kirkland Lake Area, Teck Township, District of Temiskaming : by Questor Surveys Limited for the Ontario Geological Survey, Prelim.Map P.2263A North Half, and 2263B South Half ,Geophysical Series, Scale 1:20,000, Survey and compilation February and March 1979
O.G.S.
1972: Geological Compilation Series, Map 2205, Timmins - Kirkland Lake area, compiled by D.R. Pyke, L. D. Ayres, and D.G. Innes
O.G.S.
1986: Volcanology and Mineral Deposits, Miscellaneous Paper 129
O.G.S.
2000: Airbourne magnetic and electromagnetic surveys, shaded image of the second vertical derivative of the magnetic field and Keating coefficients, Kirkland Lake area: Ontario Geological Survey, Map 82 056, scale 1:50,000
Morris, T.F., Bajc, A.F., Bernier, M.A., Kaszycki, C.A., Kelly, R.I., Murray, C and Stone, D.,
1995: Kimberlite Heavy Mineral Indicator Data, Ontario Geological Survey, Open File Report 5934, 91p.
Powell, W.G., Hodgson, C.J., and Hanes, J.A.
1989:The Expression of the Larder Lake Break in the Matachewan Area,Temiskaming District,Ontario; in Geoscience Research Grant Program, Summary of Research 1988 to 1989, Ontario Geological Survey, Miscellaneous Paper 143, Grant 329, p. 125-132
Rainsford, D.R.B.
2013: Summary of geophysical projects and activities; in Summary of Field Work and Other Activities 2013, Ontario Geological Survey, Open File Report 6290, Project Unit 13-026: Gases and Biota Related to Serpentinization of Kimberlites in the Kirkland Lake Area, B. Esen, T.H. Brisco, B. Sherwood Lollar, M.O. Schrenk, S.M. Hamilton and G. Lacampe-Couloume, Section 41, page 41-1 to 41-6
Savage, W.S.
1964:Mineral Resources and Mining Properties in the Kirkland Lake - Larder Lake Area, District of Temiskaming, Ontario Department of Mines Mineral Resource Circular No. 3, Accompanied by Chart A Kirkland-Larder Lake Area, scale 1 inch to 2 miles
Sage, R.P.
1996. Kimberlites of the Lake Timiskaming Structural Zone; Ontario Geological Survey, Open File Report 5937, 435p.
Sage, R.P.
2000. Kimberlites of the Lake Timiskaming structural zone: supplement; Ontario Geological Survey, Open File Report 6018, 123p.
Thomson, Jas. E.
1948: Geology of Teck Township and the Kenogami Lake area, Kirkland Lake gold belt; Ontario Dept. Mines, Vol. 57, pt. 5, p. 1-53, (published 1950). Accompanied by Maps 1945-1, 1946-1, scale 1 inch to 1,000 feet.
Thompson, P.H.
2005. A new metamorphic framework for gold exploration in the Timmins–Kirkland Lake area, western Abitibi greenstone belt: Discover Abitibi Initiative; Ontario Geological Survey, Open File Report 6162, 104p.
Toogood, D.J. and Hodgson, C.J.
1986: Relationship Between Gold Deposits and the Tectonic Framework of the Abitibi Greenstone Belt in the Kirkland Lake-Larder Lake Area; in Geoscience Research Grant Program, Summary of Research 1985 to 1986,Ontario Geological Survey, Miscellaneous Paper 130,Grant 227, p.79-86

Ministry of Northern Developement and Mines

:Resident Geologist Files, literally hundreds of files of submitted assesment work files covering many claim areas in Bernhardt Township, Eby Township, Grenfell Township, Gauthier Township, Lebel Township, Morrisette Township, Otto Township, Teck Township,

(xvii) STATEMENT OF QUALIFICATIONS

I, Eric Marion, with the mailing address of Box 792 in the Town of Kirkland Lake, P2N 3K4 do certify that:

1. I have worked in the exploration industry in various capacities continuously since 1977, mostly within Canada, and particularly in Ontario.
2. I am a prospector/explorationist and have been practicing my profession for twenty five years.
3. I have participated in several MNDM run prospecting techniques and geophysical prospecting techniques courses. (1990's)
4. I have gained knowledge and skills by committed research, hands on training, and application.
5. I have made use of the records and publications of the Ontario Geological Survey and the Kirkland Lake Resident Geologists Files for technical data and nomenclature, as well as field observations and personal knowledge of the area in the preparation of this report.
6. I am a Director of the Northern Prospectors Association.
7. I am the recorded holder and have an beneficial interest in the subject mining lands.
8. I have completed the Mining Act Awareness Program and have been assigned the verification number of EA32-082F-D9F7-0433

(xviii) DRILL HOLE LOG

a. Hole Number: SB-01

b. Legacy Claim: 4217525, Legal Description: Lot 12 Concession 6 South West ¼ of North ½, Tenure Identification:19960, Provincial grid Cell No: 42A01G338

c. Collar Location: 0563855E 5327462N Datum NAD83, Zone 17u, Local Grid Line 3+09 East at 2+03 South

d. Hole Azimuth: 140 degrees, astronomic, Hole Dip: minus 37 degrees

e. Core Diameter: 22 millimeters

f. Drilling Commencement: 2020 06 14 Drilling Completion: 2020 09 19

g. E. Marion & Associates

h. Core Storage Location: 611 Gov't Road West, Kirkland Lake, Ontario

i. Overburden Thickness: NA (bedrock setup**)**

j. Casing: No casing used

k. The hole was previously stopped due to several equipment failures sustained due to hard rock. Different diamond tools were sources and proved to be more effective at penetrating. Lost core lead to more equipment problems however these have been resolved and it is planned to continue drilling in the upcoming season.

l. Artesian Conditions: The hole encountered no artesian conditions

m. Geological Descriptions:

DIAMOND DRILL LOG RECORD **HOLE: SB-01**

Drilling Company: Eric Marion, Helper Louis Despres		Property: South Break
Date Started: October 11, 2019	Collar Grid Data and orientation	Claim No.: Legacy Claim 4217525
Orientation: Azimuth 140°, Dip -37°	Tenure Identification No. 19960	Provincial Grid Cell No. 42A01G338
Date Completed: September 19, 2020	Grid Line: 309 East	Township: Otto Township
Hole Length: 9.7 meter extend to 24.4m	Station: 203 South	Lot 12, Concession 6 SW1/4 of N1/2
Log Completed: December, 2020	Elevation: Approximately 320 m.	Area: West of Kirkland Lake Ontario
Logged by: (2020 core) E. Marion	Magnetic North: 11° West	
Core size: X-Ray	Grid North : 360°00’	Latitude: 48° 05’ 50”
Rig Type: X-Ray drill	Wedging Data: No wedging	Longitude: 80° 08’ 32”
Shell & Core barrel Notes: XRP core barrel, Standard reaming shell		UTM (NAD’83) Zone: 17
Casing: No Casing		0563855 meters East
Core stored at 611 Government Road West, Kirkland Lake Ontario		5327462 meters North
Laboratory: N/A		NTS Sheet: 42A/01

Map Reference: Ontario Department of Mines and Northern Affairs Geological Report 99 Geology of the Eby and Otto Township Area, District of Temiskaming by Howard Lovell 1972 and Map 2239 Eby-Otto Area

Section Line used 140°

The field measured GPS location is 0563855 mE, 5327462 mN. This location is 11/2 m north west of the outcrop reference point documented in the assessment report dated Nov 12, 2018. This document is hosted on the MLAS site. The field GPS measurement location of the collar is collar location reported in the header of this log.
The hole is located 175 m north and 309 m East from the OLS survey bar located at the south west corner of Legacy Claim 4217525.
Quartz-carbonate veining is generally distinguished from intense silicification and/or albitization by distinct, frozen, vein walls compared to vague contacts of younger silicification and/or albitization it cross cut.
Dark green mineralization logged as microfracture filling appears to be a mixture of minerals that is anomalous to both chlorite and fuchsite. It is logged as fuchsite in this log based on a chrome green color tint and the presence of fuchsite in nearby green carbonate outcrops. This dark green mineralization appears to grade from un-deformed medium green carbonate alteration at 2.24-2.37m (fine (<1mm) dark green net texture in grey groundmass). The best representation of apparent dark green microfracture filling is located at 1.21- 2.24. Preliminary evidence indicates dark green silicate minerals migrated into fracture fillings in front of silicification and/or albitization.

% = Percent, DCA = Core angle as "degrees to core axis", < = less than, > = greater than, mm = millimeter, m = meter

(2019 drilling logged by D Robinson)

From	*To*	*From*	*To*	*Description*	*Sample*	*From*	*To*	*metres*	*Au ppm*
0.00	*0.00*			*No Casing: This hole was collared in bedrock. The hole did not encounter artesian conditions so no sealing or valving was required.*					
0.00	*6.40*			*GREEN CARBONATE: Generally hard (</>knife), massive, extremely fine grained, pale beige groundmass with prominent dark chrome green (fuchsitic) microfracture filling. Microfracture filling imparts an apparent breccia texture as a net of microfracture filling net enclosing an apparent breccia texture. Short section have very fine 0.5-2.0 mm dark green, net texture. Locally 3-5% generation of 0.2-1.0 cm quartz-carbonate vein cross cutting gm and dark green microfracture filling. Also very hard (>knife))sections of pale grey, intense silicification and/or albitization core cross cut by multiple generations of quartz-carbonate fracture filling and veining to 5.0 cm (generally <1.0 cm) . Locally grey silicification lacking dark green microfracture filling. Silicified/albitized alteration lacks the dark green microfracture filling.*					
		0.00	*0.04*	*Brown weathering of pale groundmass. 3% very fine grained, disseminated pyrite.*					
		0.04	*0.56*	*12% quartz-carbonate veining, commonly 55 and 120 dca. 3% fine grained pyrite and a few pyrite grains to 1.0 mm concentrated in dark green microfracture filling.*					
		0.56	*0.96*	*Weathered green carbonate with some relict dark green foliation. 11% quartz- carbonate fracture filling commonly 55 and 120 dca. 3% fine grained pyrite and a few pyrite grains to 1.0 mm concentrated in dark green microfracture filling.*					
		0.96	*1.21*	*Arbitrarily logged as lost core to accommodate sampling.*					
		1.21	*2.24*	*Much <0.1 cm pale grey quartz-carbonate microfracture filling plus 2% quartz-carbonate veining commonly 50 dca. 2% extremely fine grained disseminated pyrite concentrated in dark green microfracture filling.*					
		2.24	*2.37*	*Undeformed green carbonate as fine (<1mm) dark green net texture in grey groundmass 8% quartz-carbonate veining.*					
		2.37	*4.40*	*18% generally barren quartz-carbonate veining to 4.0 3% pyrite concentrated in thick dark green bands with up to 20% pyrite. Fine dark green fracture filling generally absent.*					
		4.40	*5.73*	*5% generally barren quartz-carbonate veining to 1.5 cm cross cutting very hard pale grey silicification and/or albitization and pyritic mineralization. 2% pyrite concentrated in a few dark green fracture filling (up to 0.3 cm) with up to 20% pyrite and lessor very fine grain disseminated pyrite in silicification and or albitization.*					
		5.73	*6.40*	*6% quartz-carbonate veining cross cutting weak to moderate grey silicification and/or albitization and gm with dark green pyritic fracture filling. 4% 1-1.5 mm disseminated pyrite concentrated in dark green fracture filling and less altered groundmass.*					
6.40	*6.67*			*GREY SILICIFICATION and/or ALBITIZATION: Variable pale grey silicification and/or albitization 4% quartz-carbonate veining cross cutting silicification and/or albitization. 7% pyrite disseminated in alteration and a fine granular pyrite seams.*					
6.67	*7.29*			*GREEN CARBONATE: Very hard (>knife), pale grey groundmass of silicification and/or albitization 9% barren quartz-carbonate veining to 3.0 cm (6.67-6.70m) and 5% pyrite concentrated in dark green fracture filling and disseminated in pale grey groundmass. A few angular to rounded breccia fragments with disseminated pyrite. Lower contact defined by last significant dark green microfracture filling.*					
		7.05	*7.15*	*Arbitrarily logged as lost core to accommodate sampling.*					

7.29 14.71 *MAIN ZONE: BRECCIATION, GREY SILICIFICATION and/or ALBITIZATION:3% barren quartz-carbonate veining cross cutting breccia fragments, silicification and/or albitization. Approximately 20-25% very hard (>knife), pale yellow angular, fractured breccia frag in a groundmass of variable pale grey, very hard (>knife) silicification and/or albitization. Approximately 5% fine to 2 mm grains of disseminated pyrite concentrated in breccia fragments, and silicification and/or albitization and a few thin dark green fracture fillings.*

12.63 12.71 Arbitrarily logged as lost core to accommodate sampling.

2020 Hole Extension

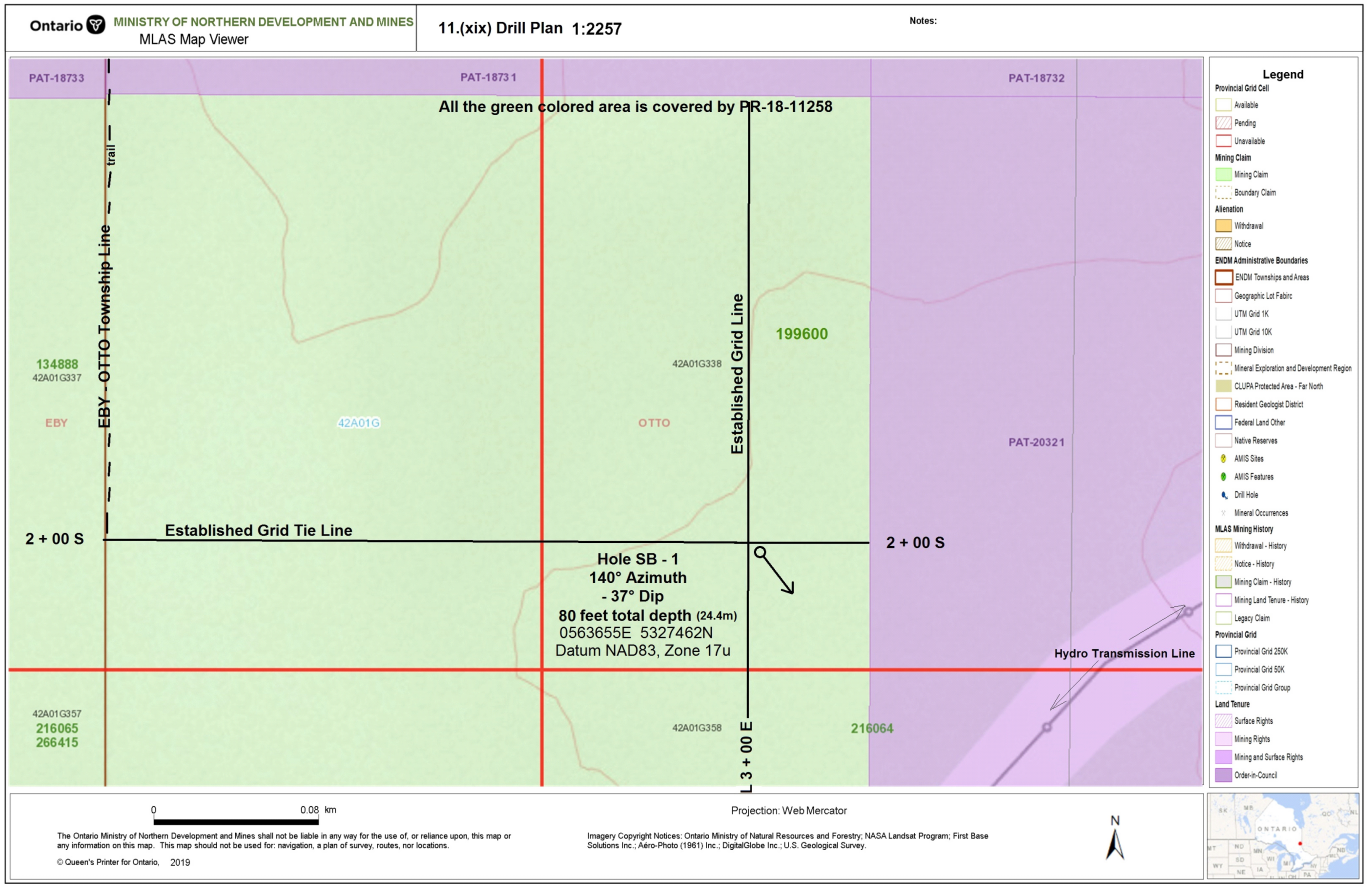
14.71 24.40 MAIN ZONE: BRECCIATION, GREY SILICIFICATION and/or ALBITIZATION: Same as previous section 7.29 to 14.71. 3% barren quartz-carbonate veining cross cutting breccia fragments, silicification and/or albitization. Approximately 20-25% very hard (>knife), pale yellow angular, fractured breccia frag in a groundmass of variable pale grey, very hard (>knife) silicification and/or albitization. Approximately 5% fine to 2 mm grains of disseminated pyrite concentrated in breccia fragments, and silicification and/or albitization and a few thin dark green fracture fillings. Zone showing consistant from 7.29m to 24.4m (17.1meters).

24.40 END OF HOLE

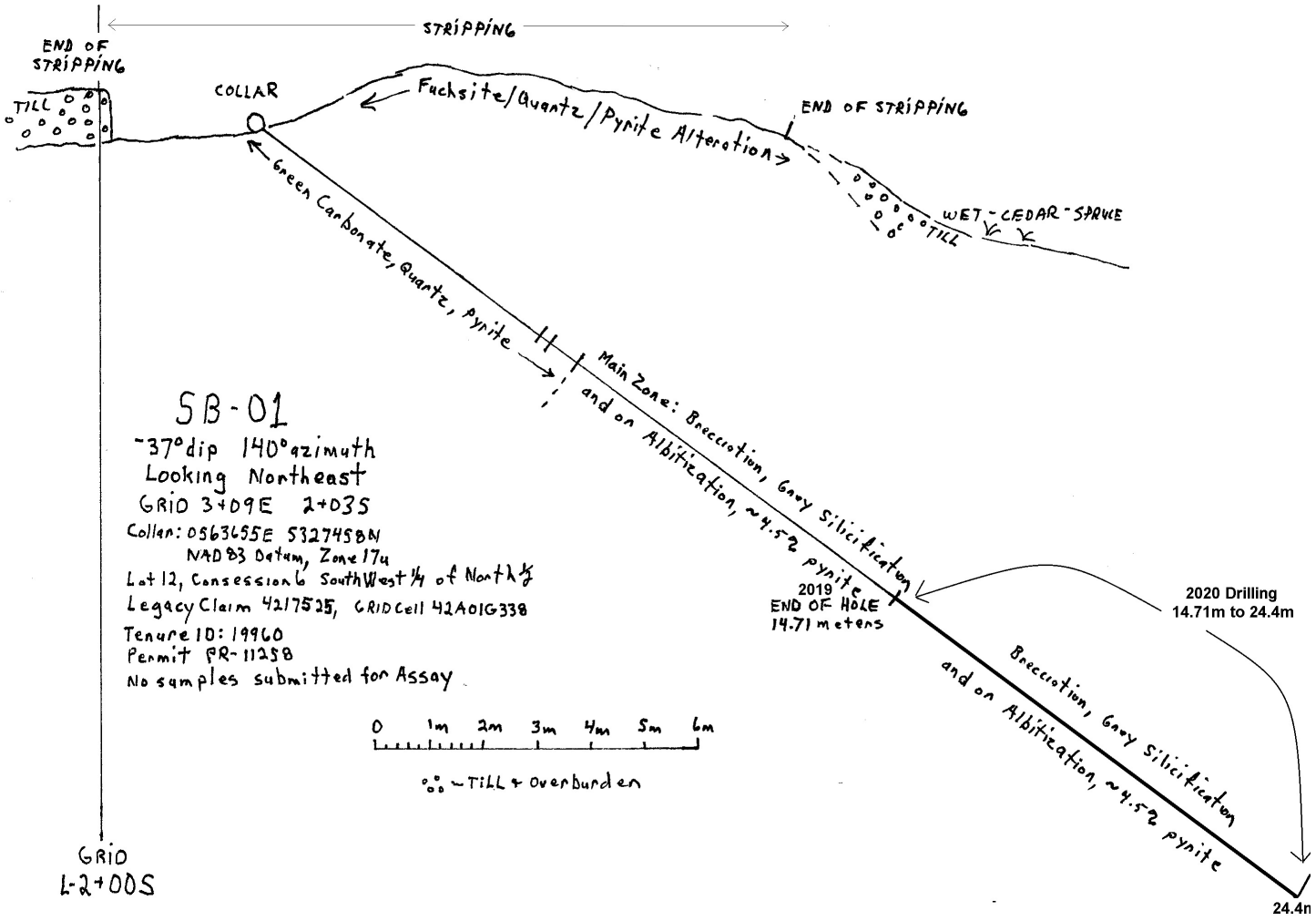
(xviii)

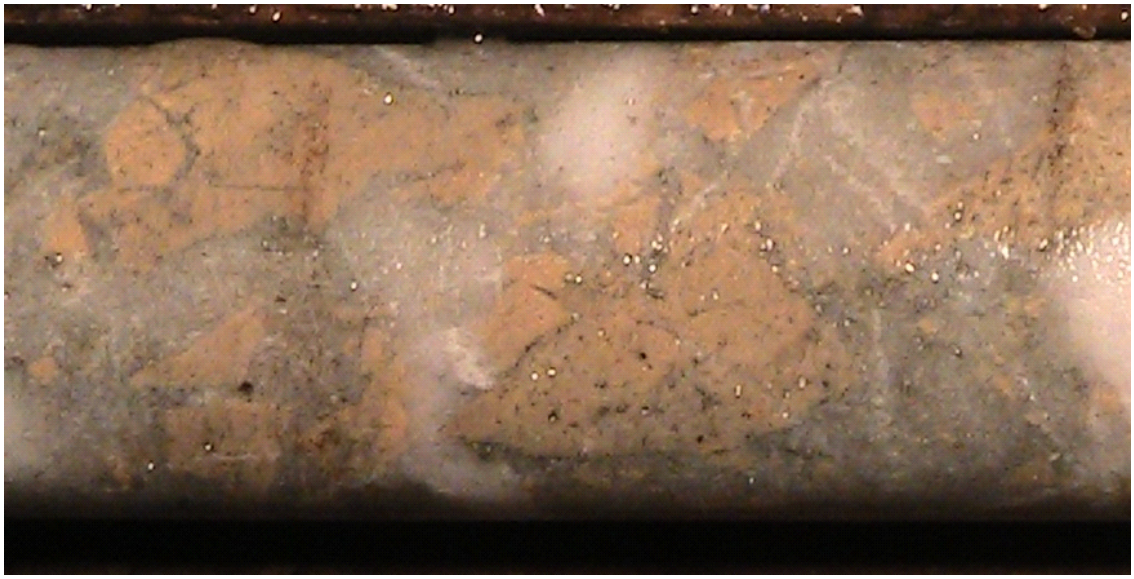
n. Total Depth:24.40 meters
o. Sampling: no samples taken for assay or physical tests,
p. Log Completed for 9.7 meter extension: December 30, 2020
q. Logged by: (2020 core) E Marion
r. Symbols or abbreviations: % = percent, dca = degrees to core angle, < = less than, N = North, W = West
> = greater than, mm = millimeter, m = meter, S = South, E = East, ° = degrees
s. Assaying: NA
t. Overburden Drilling: NA

(xix) DRILL PLAN



(xx) Drill Hole Section looking north-east





Pyritic core at about 19.0 meters showing altered relict fragments in a quartz/albite matrix. Core is 22 mm diameter.

END