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# Prospecting on Legacy Claim 4279361 Report for Assessment Purposes

## Pays Plat Lake Area, Thunder Bay Mining Division

473,593 mE and 5,425,805 mN (UTM NAD83, Zone 16)



Prepared for:

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# Table of Contents

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<b>1</b>	<b>SUMMARY .....</b>	<b>4</b>
<b>2</b>	<b>INTRODUCTION.....</b>	<b>4</b>
2.1	ISSUER FOR WHOM THE REPORT IS WRITTEN .....	4
2.2	TERMS OF REFERENCE.....	5
2.3	SOURCES OF INFORMATION AND DATA.....	7
<b>3</b>	<b>LOCATION AND LAND TENURE.....</b>	<b>8</b>
3.1	LOCATION .....	8
3.2	LAND TENURE .....	10
<b>4</b>	<b>ACCESS AND INFRASTRUCTURE .....</b>	<b>11</b>
<b>5</b>	<b>HISTORY OF EXPLORATION IN THE AREA .....</b>	<b>12</b>
<b>6</b>	<b>GEOLOGICAL SETTING .....</b>	<b>13</b>
<b>7</b>	<b>CURRENT PROGRAM .....</b>	<b>15</b>
7.1	PROSPECTING.....	15
7.2	DAILY LOG.....	15
<b>8</b>	<b>CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>17</b>
<b>9</b>	<b>STATEMENT OF COSTS AND DISTRIBUTION OF CREDITS .....</b>	<b>17</b>
<b>10</b>	<b>REFERENCES.....</b>	<b>18</b>

## List of Tables

Table 1 - Glossary of Terms.....	5
Table 2 – Units of Measure. ....	6
Table 3 - Claims in the property.....	10
Table 4 - Exploration history of the nearby Winston Lake Mine. ....	12
Table 5 – Statement of Costs. ....	17
Table 6 - Distribution of program costs. ....	17

## List of Figures

Figure 1 - Location of the legacy claim #4279361 east of Thunder Bay, Ontario.....	9
Figure 2 - Key map to show where the claims are in relation to administrative boundaries.....	10
Figure 3 - Claim map showing the 4 boundary cells that make up the property, all within Pays Plat Lake Area.....	11
Figure 4 - Access to the property.....	12
Figure 5 - Geology of the Winston Lake greenstone belt (A) and the Winston Lake mine property (B). Location of current property shown as yellow dot on figure B. (Lodge, 2012 and references within). ....	14
Figure 6 - GPS tracks and waypoints collected during prospecting on October 21st, 2017.....	16

# 1 Summary

This report summarizes prospecting work that took place on October 21st, 2017 on a single legacy claim (4279361), which became 4 individual boundary claims: 249357, 270093, 299923, and 317234. The claims are located in Pays Plat Lake Area (G-0606), roughly 220 km east of Thunder Bay, Ontario, within the Thunder Bay Mining Division. The claims are owned in partnership by Peter Gehrels (50%) and Allan Onchulenko (50%), and these two owners performed the prospecting work.

The purpose of the work was to verify access and perform preliminary prospecting on the claims. There were three waypoints taken within the day-long traverse, with specific rock types indicated. There are other observations noted along the traverse as well, contained within a daily prospecting log. There were no samples taken during this work.

This property abuts patents and claims that cover the historic Wintson Lake Mine north of Schreiber, Ontario. The major rock type that was encountered during the prospecting was fine- or medium-grained gabbro, and only a single observation of rhyolite. Small amounts of pyrite were observed throughout the day.

This report was prepared by Lesley Weston of Fladgate Exploration Consulting Corporation (“Fladgate”) and took 1.5 days to compile.

# 2 Introduction

## 2.1 Issuer for Whom the Report is Written

Fladgate Exploration Consulting Corporation (“Fladgate”) was engaged by Allan Onchulenko and Peter Gehrels to write an assessment report on prospecting activities from October 2017.

Fladgate is an international consulting company based in Thunder Bay, Ontario, Canada, providing a wide range of geological and exploration services to the mineral and energy industries. With offices in Thunder Bay, Ontario, Vancouver, BC, and Vallenar, Chile, Fladgate is well-positioned to service its client base. Fladgate's mandate is to provide professional, geological, and exploration services to the mineral and energy industries at competitive rates and without compromise. Fladgate's professionals have international experience in a variety of disciplines with services that include:

- Exploration Project Generation, Design, Implementation and Management
- Data Compilation and Exploration Target Generation
- Property Evaluation and Due Diligence Studies
- Independent, NI 43-101 Compliant, Technical Report Writing
- Mineral Resource Modeling and Estimation
- 3D Geological Modeling and Database Management
- Land Management

## 2.2 Terms of Reference

The Metric System or SI System is the primary system of measure and length used in this report and is generally expressed in kilometers, meters and centimeters; volume is expressed as cubic meters; mass expressed as metric tonnes; area as hectares; base metals such as zinc, copper, and lead grades as percent (%) or parts per million (ppm). The precious metal grades (such as gold) are generally expressed as grams/tonne (g/t) but may also be in parts per million (ppm) or parts per billion (ppb).

Metals and minerals acronyms in this report conform to mineral industry accepted usage and the reader is directed to an online source at [https://www.bgs.ac.uk/scmr/docs/papers/paper\\_12.pdf](https://www.bgs.ac.uk/scmr/docs/papers/paper_12.pdf).

**Table 1 - Glossary of Terms.**

Term	Meaning	Term	Meaning
AEM	Airborne Electromagnetic	Na	sodium
Ag	Silver	Na <sub>2</sub> O	sodium oxide
Al	Aluminum	NAD 83	North American Datum of 1983
Al <sub>2</sub> O <sub>3</sub>	aluminum oxide	NE	northeast
AW	apparent width	NI	National Instrument
As	Arsenic	Ni	nickel
Au	Gold	NSR	net smelter return
Ba	Barium	NTS	National Topographic System
Be	Beryllium	OGS	Ontario Geological Survey
Bi	Bismuth	P	phosphorous
C	carbon dioxide	P <sub>2</sub> O <sub>5</sub>	phosphorous oxide
Ca	Calcium	Pb	lead
CaO	calcium oxide	Pd	palladium
Cd	Cadmium	pH	acidity
Co	Cobalt	Pt	platinum
CO <sub>2</sub>	carbon dioxide	QA/QC	Quality Assurance/Quality Control
Cr	Chromium	S	south
Cr <sub>2</sub> O <sub>3</sub>	chromium oxide	S	sulphur
Cu	Copper	Sb	antimony
DDH	diamond drill hole	SE	southeast
DW	drilled width	Se	selenium
E	East	SiO <sub>2</sub>	silicon oxide
EM	electromagnetic	Sn	tin
Fe	Iron	SO <sub>2</sub>	sulfur dioxide
Fe <sub>2</sub> O <sub>3</sub>	iron oxide (ferric oxide-hematite)	Sr	strontium
Fe <sub>3</sub> O <sub>4</sub>	iron oxide (ferrous oxide-magnetite)	Sum	summation
HLEM	horizontal loop electromagnetic	SW	southwest
H <sub>2</sub> O	hydrogen oxide (water)	Ti	titanium
IP	induced polarization	TiO <sub>2</sub>	titanium oxide
K	Potassium	Tl	thallium
K <sub>2</sub> O	potassium oxide	TW	true width
Li	Lithium	U	uranium
LOI	loss on ignition (total H <sub>2</sub> O, CO <sub>2</sub> and SO <sub>2</sub> content)	U <sub>3</sub> O <sub>8</sub>	uranium oxide (yellowcake)
Mg	Magnesium	UTM	Universal Transverse Mercator
MgO	magnesium oxide	V	vanadium
Mn	Manganese	V <sub>2</sub> O <sub>5</sub>	vanadium oxide
MNDMF	Ministry of Northern Development, Mines and Forestry	VLF	very low frequency
MnO	manganese oxide	VLF-EM	very low frequency-electromagnetic

Mo	Molybdenum	W	west
Mt	millions of tonnes	Y	yttrium
N	North	Zn	zinc
NW	northwest		

**Table 2 – Units of Measure.**

Units of Measure	Abbreviation	Units of Measure	Abbreviation
Above mean sea level	amsl	Litre	L
Ampere	A	Litres per minute	L/m
Annum (year)	a	Megabytes per second	Mb/s
Billion years ago	Ga	Megapascal	MPa
British thermal unit	Btu	Megavolt-ampere	MVA
Candela	cd	Megawatt	MW
Carat	ct	Metre	m
Carats per hundred tonnes	cpht	Metres above sea level	masl
Carats per tonne	cpt	Metres per minute	m/min
Centimetre	cm	Metres per second	m/s
Cubic centimetre	cm <sup>3</sup>	Metric ton (tonne)	t
Cubic feet per second	ft <sup>3</sup> /s or cfs	Micrometre (micron)	µm
Cubic foot	ft <sup>3</sup>	Microsiemens (electrical)	µs
Cubic inch	in <sup>3</sup>	Miles per hour	mph
Cubic metre	m <sup>3</sup>	Milliamperes	mA
Cubic yard	yd <sup>3</sup>	Milligram	mg
Day	d	Milligrams per litre	mg/L
Days per week	d/wk	Millilitre	mL
Days per year (annum)	d/a	Millimetre	mm
Dead weight tonnes	DWT	Million	M
Decibel adjusted	dBa	Million tonnes	Mt
Decibel	dB	Minute (plane angle)	'
Degree	°	Minute (time)	min
Degrees Celsius	°C	Month	mo
Degrees Fahrenheit	°F	Newton	N
Diameter	∅	Newtons per metre	N/m
Dry metric ton	dmt	Ohm (electrical)	Ω
Foot	ft	Ounce	oz
Gallon	gal	Parts per billion	ppb
Gallons per minute (US)	gpm	Parts per million	ppm
Gigajoule	GJ	Pascal	Pa
Gram	g	Pascals per second	Pa/s
Grams per litre	g/L	Percent	%
Grams per tonne	g/t	Percent moisture (relative humidity)	% RH
Greater than	>	Phase (electrical)	Ph
Hectare (10,000 m <sup>2</sup> )	ha	Pound(s)	lb
Hertz	Hz	Pounds per square inch	psi
Horsepower	hp	Power factor	pF
Hour	h (not hr)	Quart	qt
Hours per day	h/d	Revolutions per minute	rpm
Hours per week	h/wk	Second (plane angle)	"
Hours per year	h/a	Second (time)	s
Inch	"(symbol, not ")	Short ton (2,000 lb)	st
Joule	J	Short ton (US)	t
Joules per kilowatt-hour	J/kWh	Short tons per day (US)	tpd
Kelvin	K	Short tons per hour (US)	tph

Units of Measure	Abbreviation	Units of Measure	Abbreviation
Kilo (thousand)	k	Short tons per year (US)	tpy
Kilocalorie	kcal	Specific gravity	SG
Kilogram	kg	Square centimetre	cm <sup>2</sup>
Kilograms per cubic metre	kg/m <sup>3</sup>	Square foot	ft <sup>2</sup>
Kilograms per hour	kg/h	Square inch	in <sup>2</sup>
Kilograms per square metre	kg/m <sup>2</sup>	Square kilometre	km <sup>2</sup>
Kilojoule	kJ	Square metre	m <sup>2</sup>
Kilometre	km	Thousand tonnes	kt
Kilometres per hour	km/h	Tonne (1,000kg)	t
Kilonewton	kN	Tonnes per day	t/d
Kilopascal	kPa	Tonnes per hour	t/h
Kilovolt	kV	Tonnes per year	t/a
Kilovolt-ampere	kVA	Total dissolved solids	TDS
Kilovolts	kV	Total suspended solids	TSS
Kilowatt	kW	Volt	V
Kilowatt hour	kWh	Week	wk
Kilowatt hours per short ton (US)	kWh/st	Weight/weight	w/w
Kilowatt hours per tonne (metric ton)	kWh/t	Wet metric ton	wmt
Kilowatt hours per year	kWh/a	Yard	yd
Kilowatts adjusted for motor efficiency	kWe	Year (annum)	a
Less than	<	Year	yr

The term gram/tonne (g/t) is expressed as “gram per tonne” where 1 gram/tonne = 1 ppm (part per million) = 1000 ppb (part per billion). Other abbreviations include ppb = parts per billion; ppm = parts per million; oz/t = ounce per short ton; Moz = million ounces; Mt = million tonnes; t = tonne (1000 kilograms); SG = specific gravity; lb/t = pound/ton; and st = short ton (2000 pounds).

Dollars are expressed in Canadian currency (CAD\$) unless otherwise noted. Base and certain industrial metal and mineral prices are stated as US\$ per tonne (US\$/t), precious metal prices are stated in US\$ per troy ounce (US\$/oz) and Uranium and certain industrial metal and mineral prices are stated in US\$ per pound (US\$/lb).

Unless otherwise noted, Universal Transverse Mercator (“UTM”) coordinates are provided in the datum of NAD83 Zone 16 North.

### 2.3 Sources of Information and Data

This report as well as all interpretations and recommendations are based on the following digital datasets and maps managed and available from the Ministry of Energy, Northern Development and Mines (ENDM), Geology Ontario, and the Ontario Geological Survey (OGS):

- Geological information and historical exploration data from the Ontario Assessment Files Database (OAFD),
- Mineral Deposit Inventory (MDI) including past-producers,
- Abandoned Mines Information (AMIS),
- Geophysical and geological maps publications including major faults and shears,



- Drill hole information from the Ontario Drill hole database (ODHD),
- Assessment reports (AFRIs), and
- Land tenure information including administrative boundaries, alienations, mining patents and claims (ENDM).

All of the above datasets are publicly available by accessing the Ontario Geological Survey's website called OGS Earth (<https://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearch>) and scrolling down to the various datasets which are present in both Google Earth and GIS file formats.

- National Topographic System (NTS) map sheets 52H, 42E and 42F as shown in the index *Error! Reference source not found.* below and downloaded from the GeoGratis link: ([http://ftp.geogratis.gc.ca/pub/nrcan\\_rncan/vector/index/html/geospatial\\_product\\_index\\_en.html](http://ftp.geogratis.gc.ca/pub/nrcan_rncan/vector/index/html/geospatial_product_index_en.html)); Topographic data is divided into smaller areas numbered 1 to 16. All large and small-scale topographic data was downloaded as shape files and included in the database accompanying this report.
- Indigenous Reserves (<https://www.ontario.ca/page/ontario-first-nations-maps>);
- Provincial Parks by making a request from the Ministry of Natural Resources Land Information Ontario (<https://www.ontario.ca/page/land-information-ontario>).

## 3 Location and Land Tenure

### 3.1 Location

The property is located roughly 220 km east of Thunder Bay, Ontario, in Pays Plat Lake Area (G-0606), Thunder Bay Mining Division (**Figure 1**). The claims are roughly 20 km north of Lake Superior and the center of the property is located at 473,593 mE and 5,425,805 mN (UTM NAD83, Zone 16). A more detailed map of the surrounding topographical region is displayed in **Figure 2**.



Figure 1 - Location of the legacy claim #4279361 east of Thunder Bay, Ontario.

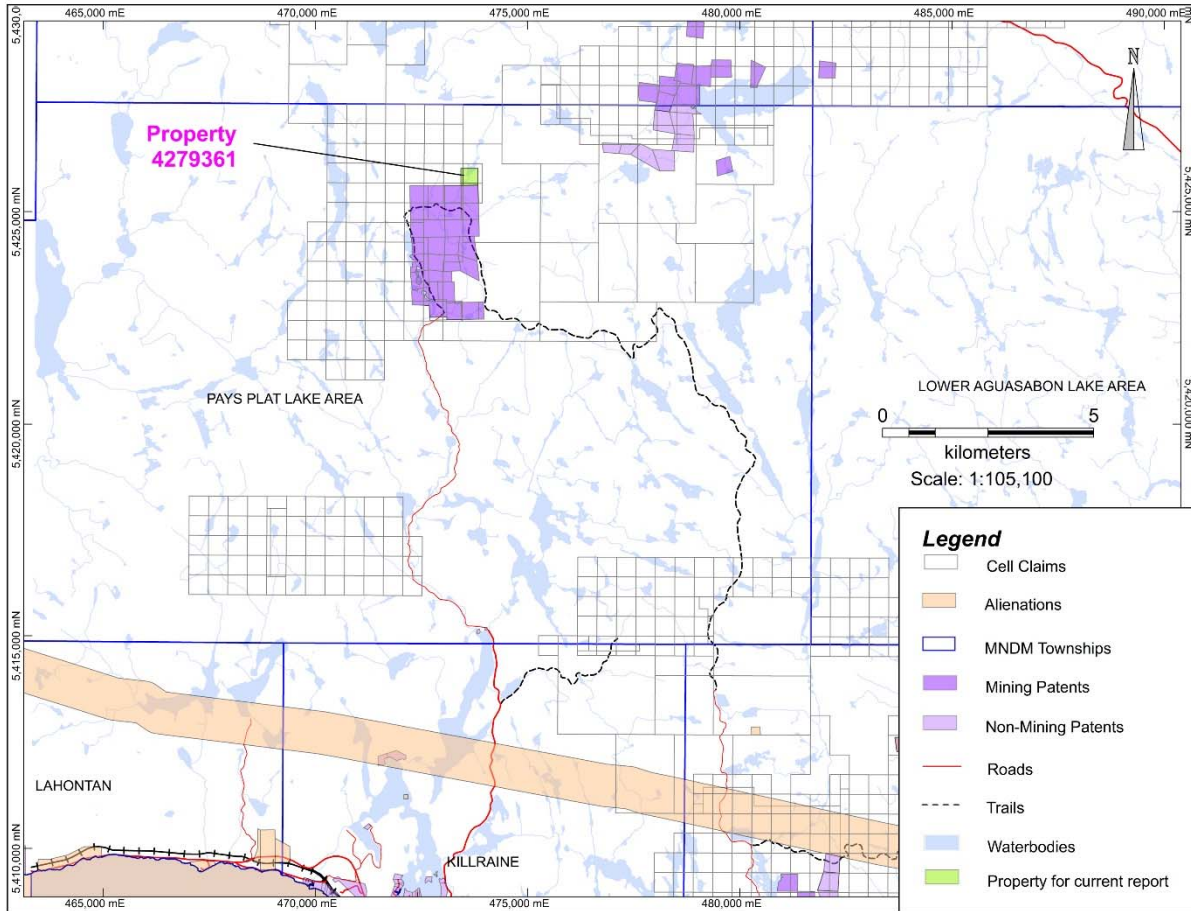


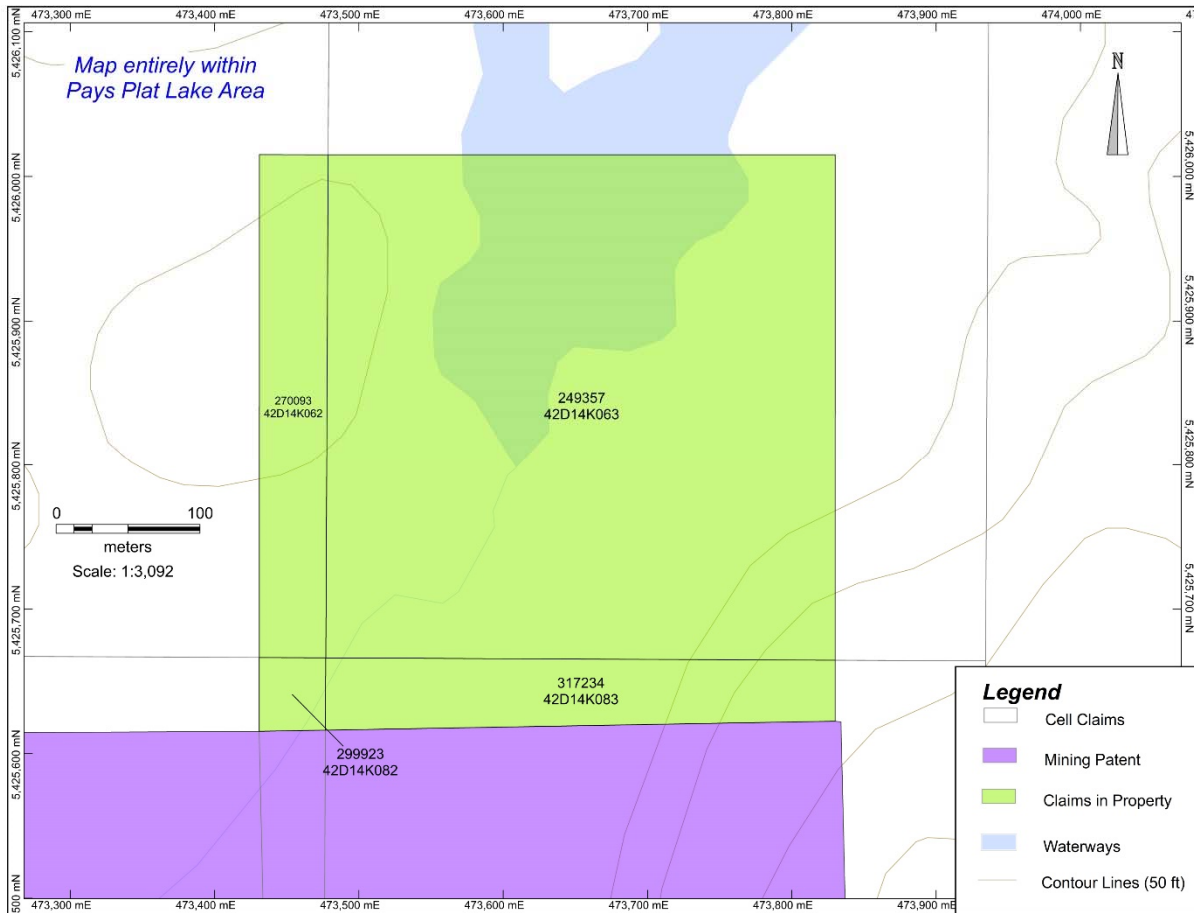
Figure 2 - Key map to show where the claims are in relation to administrative boundaries.

### 3.2 Land Tenure

The property consists of 4 cell claims that were formerly a single legacy claim (#4279361). A list of claim numbers, cell grid numbers, and anniversary dates is compiled in **Table 3** below. The claims are illustrated on **Figure 3**. There was no permit required for prospecting work, and no permit exists for these claims.

Table 3 - Claims in the property.

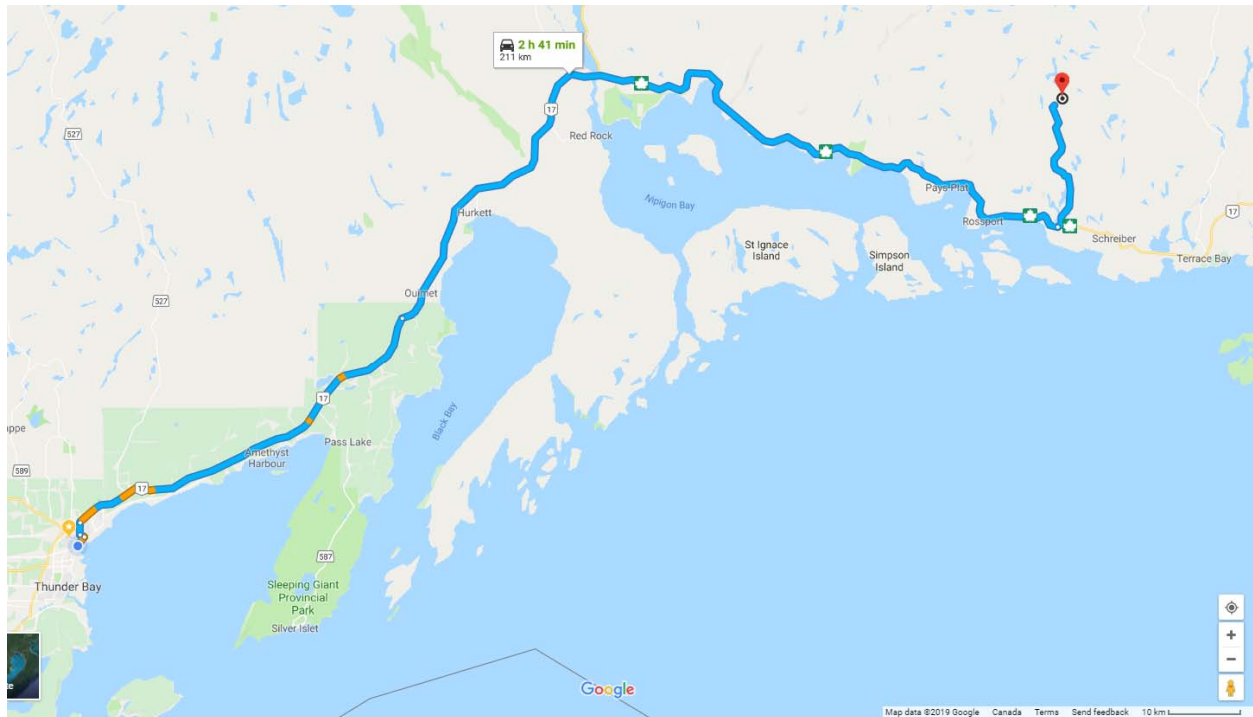
<b>Claim Number</b>	<b>Township</b>	<b>Cell Grid Number</b>	<b>Due Date</b>	<b>Ownership</b>
249357	Pays Plat Lake Area	42D14K063	Feb 3, 2019	50% Gehrels, 50% Onchulenko
270093	Pays Plat Lake Area	42D14K062	Feb 3, 2019	50% Gehrels, 50% Onchulenko
299923	Pays Plat Lake Area	42D14K082	Feb 3, 2019	50% Gehrels, 50% Onchulenko
317234	Pays Plat Lake Area	42D14K083	Feb 3, 2019	50% Gehrels, 50% Onchulenko



**Figure 3** - Claim map showing the 4 boundary cells that make up the property, all within Pays Plat Lake Area.

## 4 Access and Infrastructure

Access to the property from Thunder Bay, Ontario is travel east on highway 11/17 roughly 200 km until you reach the Whitesand Winston Road. Travel north on this road for 20 km until you reach the gate of the former Winton Lake Mine. The Whitesand Winston Road is a gravel road and is not always plowed in the winter. Travel on foot for roughly 1.5 km until you reach the claim. The claim lines are clearly marked with flagging tape and the lines are blazed well in both directions making it easy to spot as you approach. Access is illustrated on **Figure 4** below.



**Figure 4 - Access to the property.**

## 5 History of Exploration in the Area

The history of exploration at the nearby Winston Lake mine area and the Pick Lake claims is outlined in **Table 4** below. The claims prospected for the current report are within 2 km of the historic Winston Lake mine site.

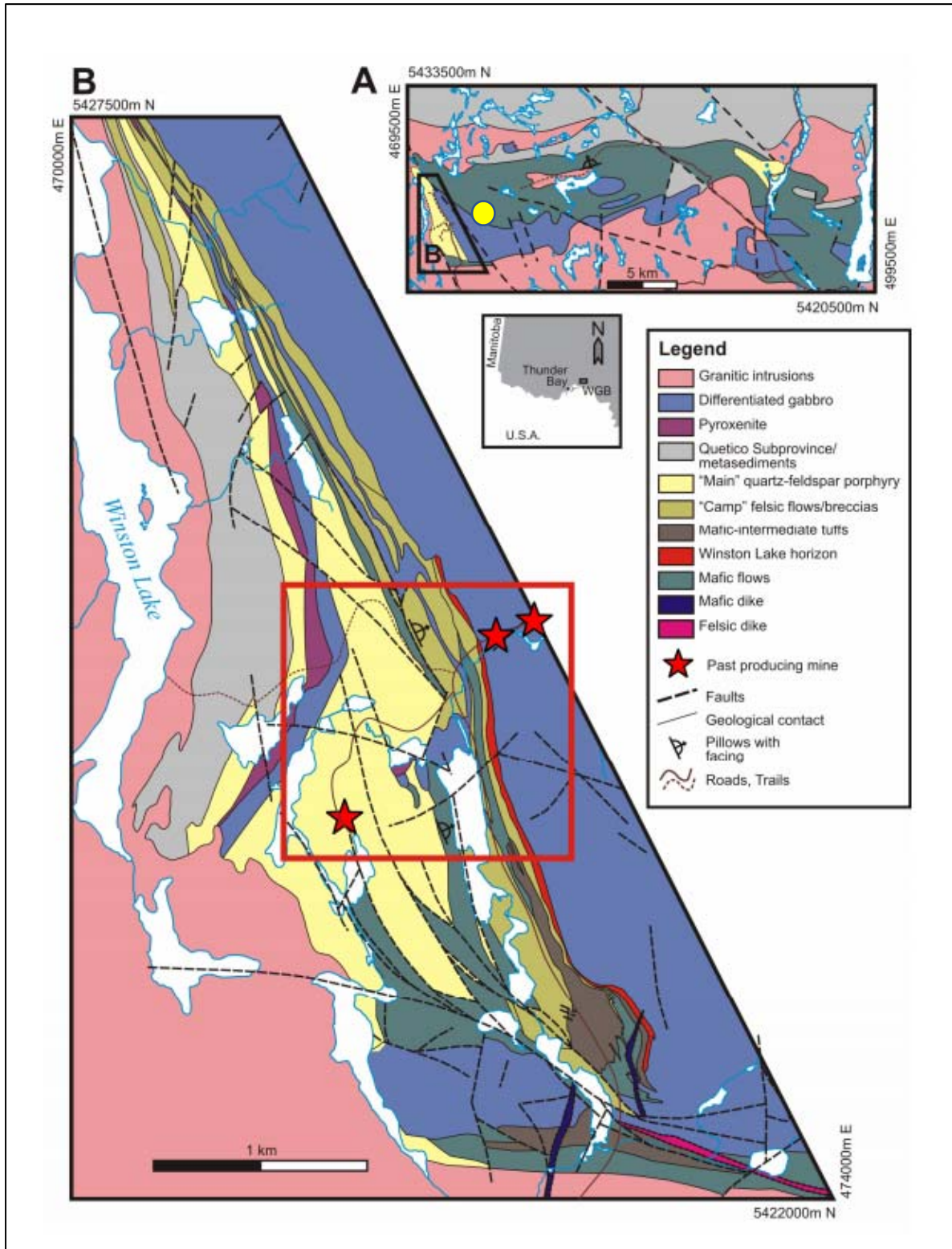
**Table 4 - Exploration history of the nearby Winston Lake Mine.**

Year	Activity
Late 1800s	Exploration began with the discovery of the Zenith zinc deposit.
Early 1900s	Massive coarse-grained sphalerite ore was hand-mined.
1966-1970	Zenmac Metal Mines Ltd. mined Zenith producing 180,000 tons of ore grading 16.5% Zn.
1978-1980	Corporation Falconbridge Copper (CFC) acquired the property.
1992	Exploration resulted in discovery of the Winston Lake massive sulfide deposit.
1983	CFC commenced a 3-compartment shaft for underground delineation drilling. It took 15-18 months to complete the shaft and underground drilling, which resulted in the initial (non-compliant) historical resource of 2.95 MT @ 17.8% Zn, 0.94% Cu, 0.7 oz/ton Ag and 0.025 oz/ton Au.
1984	Pick Lake discovery was announced.

Year	Activity
1988	Minnova (formerly CFC) put the Winston Lake mine into production with pre-production expenses of \$73.6M.
1988	Company reported completion of a 741 m shaft with designed production capacity of 100 metric tonnes per day. Payback on initial investment was only 2.5 years compared to the 5 years initially estimated, due to high Zn prices and good production.
1993	Access to Pick Lake deposit via an ~2,200 m drift west of Winston Lake and the development of a 650 m internal shaft commenced.
1998	Inmet (formerly CFC, Minnova) intended to mine the Pick Lake deposit for 7 years, but a poor Zn price caused the mine to close. Historical production from the project was ~3.3 million tonnes processed over an 11-year period producing 900 M lbs of Zn, 53 M lbs of copper, and over 50,000 ounces of Au. Post cessation of mining, Inmet dismantled the process plant, sold it and began reclamation at the site.
2000-2008	Limited work was undertaken at the project as Inmet was focusing on development of its world-class Antamina Mine development in Peru.
2008-2010	Orebot Inc. acquired the Pick Lake claims carrying out exploration programs.
2011	Property was optioned to Silvore Fox and they immediately undertook an airborne versatile time domain electromagnetic (V-TEM) survey.
2013	Inmet was taken over by First Quantum Minerals Inc.
2017-2018	Superior Lake Resources acquired the Pick Lake licenses and optioned Winston Lake.

## 6 Geological Setting

The geology of the Winston Lake mine area is shown in the following figure, taken from a field guide to the area by Lodge (2012).



**Figure 5 - Geology of the Winston Lake greenstone belt (A) and the Winston Lake mine property (B).** Location of current property shown as yellow dot on figure B. (Lodge, 2012 and references within).

## 7 Current Program

### 7.1 Prospecting

The claims were accessed on foot along an existing mine road which ended near a dam. The rest of the traverse was achieved using a compass and/or GPS and walking through heavy bush and scrub. GPS tracks for this prospecting work were collected using a Garmin GPSMap 64s handheld GPS. are presented in **Figure 6** along with several waypoints. The starting point of prospecting is Waypoint #1, located on claim 299923 near the #3 post of the legacy claim #4279361.

### 7.2 Daily Log

A detailed log of observations was kept by A. Onchulenko as the field work progressed, taking note of outcrop, rock type, vegetation, and terrain. No rock or soil samples were taken.

The terrain in the area was generally rugged with lots of relief. Most of the forest was spruce with some birch, poplar and alder. Overall, the outcrop exposure was very good in the areas of relief and near shorelines, however in some of the forested areas and a couple of the lower-lying spots, the overburden covers the bedrock.

The objective of the daily traverse was to visit as many outcrops as possible and identify the rock types present as well as look for indications of alteration and/or mineralization. Both prospectors carried a long-handled railway adze as the primary tool for breaking and digging for bedrock, and also a loupe was used to help identify all the rocks.

Looking at **Figure 6**, the traverse began heading east, then followed north following the contour of the lake which is within claim 249357. The bedrock in this area is well-exposed and is a fine- to medium-grained gabbro with only minor sulfide identified as pyrite. A geological contact was noted at waypoint #2, where the gabbro was altered and mixed with unidentified another rock type. The outcrop was exposed in an east-west direction here, dipping under cover to the north. A “rhyolite”-bearing outcrop was found at waypoint #3, which was within a small low-lying exposure. Every other outcrop visited on the traverse contained fine- or medium-grained gabbro with either no, or only trace sulfide minerals.



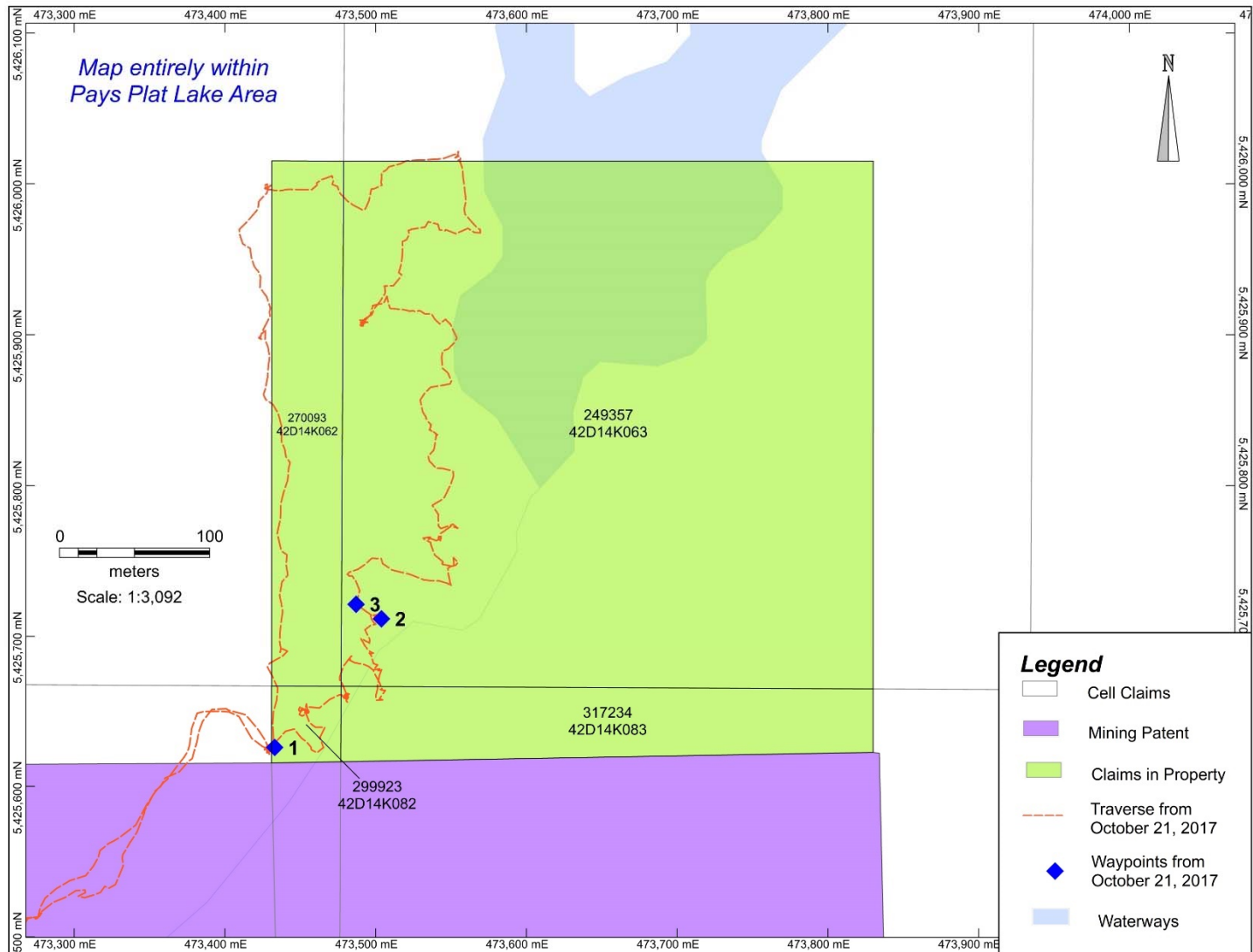


Figure 6 - GPS tracks and waypoints collected during prospecting on October 21st, 2017.

## 8 Conclusions and Recommendations

The prospecting results were successful in that two different rock types were identified in outcrop and also a contact zone was observed. The eastern half of claim # 249357 has not been prospected to date, and is difficult to access as it is separated by a small lake that had been dammed for the water supply to the former Winston Lake Mine. It will need to be prospected in detail in the future to determine the rock types present there.

## 9 Statement of Costs and Distribution of Credits

**Table 5 – Statement of Costs.**

Description	days	Daily Rate	Factor*	Total
Prospector (P. Gehrels)	1	\$350	2	\$700
Prospector (A. Onchulenko)	1	\$350	2	\$700
<b>Associated Costs</b>				
fuel	400 km	\$0.50/km	1	\$200
Report writing (L. Weston)	1.5	\$500	1	\$750
<b>Grand Total</b>				<b>\$2,350</b>

*\*This factor is applied to the field time for the two prospectors.*

**Table 6 - Distribution of program costs.**

segment	line km	claim	% of total 1.5 km	Distributed Program \$
1	0.27	270093	17.98	\$422
2	0.19	299923	12.96	\$304
3	0.08	317234	5.64	\$133
4	0.95	249357	63.43	\$1,491
<i>(off claims)</i>	<i>0.21</i>			
<i>(off claims)</i>	<i>0.05</i>			
total km traversed on 4 small claims	<b>1.50</b>	<b>4</b>	<b>100</b>	<b>\$2,350</b>

## 10 References

Lodge, R. W. D. (2012) Winston Lake and Manitouwadge Revisited: Modern Views of Two Volcanogenic Massive Sulphide (VMS)-Endowed Greenstone Belts. A Field Trip Guidebook. Ontario Geological Survey Open File Report 6282.