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**ALDO PALMA MOLYBDENUM PROPERTY,  
LASTHEELS TOWNSHIP, WAWA, ONTARIO  
PREPARED FOR SIERRA DEVELOPMENT  
SERVICES INC.**

**APRIL 2, 2014  
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# **1. SUMMARY**

## **1.1. EXECUTIVE SUMMARY**

Mr. Neil N. Gow, P.Geo. was retained by Mr. Aldo Palma of Sierra Development Services Inc. (Sierra) to prepare an independent technical report on a molybdenum property (the Aldo Palma deposit) located in Lastheels Township, east of Wawa Ontario. Mr. Palma is keen to market and develop the property and wishes to have a National Instrument 43-101 report indicating that the project is a Property of Merit and which he can use as a potential marketing document.

The Aldo Palma property is comprised of 13 patented mining claims located in the northwest quadrant of Lastheels Township (Figure 2-1). Mineralization has been known on the property for some decades and several periods of very limited exploration have been completed on the claims.

The Aldo Palma property, located east of Wawa, has received intermittent exploration since its discovery during the 1930s. Widespread molybdenite mineralization, located in quartz veins has been located and partially tested by a number of companies. The most recent campaign of exploration was completed by Amax (Yule, 1980). The program included trenching and the drilling of 21 percussion holes and 1 diamond drill hole. Skrecky (1981) completed a thesis on the property and recognized that the prospect was likely related to porphyry molybdenum mineralization. The work completed by Skrecky (1981) showed the presence of an alteration pattern consistent with his proposed model. Skrecky (1980) interpreted the results of the single shallow diamond drill hole completed by Amax as showing the likelihood of increased alteration with depth.

The Amax exploration concentrated on an area of mineralization located along the southern boundary of the property. The Amax work did not include any mapping or sampling away from this showing area. Based on incomplete older reports from the late 1950s, other areas of mineralization were examined. There are no records of the results

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of this work available at this time but it is considered to give some encouragement for a re-examination of the property.

Further exploration should concentrate on testing for the presence of this style of mineralization.

The Aldo Palma molybdenum property was discovered in the mid-1930s. The last significant project was completed in the late 1970s and early 1980s by Amax. Ultimately, this work was not as complete as it might have been. The property is considered to be worthy of further exploration. While much of the major known area of molybdenum mineralization is protected by patented claims, part of the mapped mineralization extends off the claims. This area should be staked as a matter of urgency prior to attempting to option the property. It is considered worthwhile to stake claims along the northern and eastern boundaries as well.

While there is not a large amount of previous exploration, the historical data are present at different scales and relate to ad hoc grids. The development of a digital database would be worthwhile.

Prior to any concerted fieldwork, road access should be established. Logging has occurred to within two kilometres of the property but the road access to the logged area was impassible due to severe rainfall and flooding at the time of the property visit by Gow. Further, this access through the logged area lies on the south side of the Dill River. Arrangements with logging companies may allow this access to be developed more cheaply.

The property needs to be remapped. The Amax mapping is useful but did not extend beyond the main area of showings. There are references to mineralization in some of the older literature but none of the details of these apparent showings are available. Amax completed a ground magnetic survey over the main showing area and this work was interpreted to elucidate structure. Coverage of the entire property is considered likely to be useful. Depending on the success of the mapping, a geochemical survey should be

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completed with the aim of locating unexposed mineralization. A soil geochemical survey may help to locate or extend areas of surface mineralization. It was unclear from the property visit that there was a worthwhile soil profile for much of the property.

Induced polarization (IP) surveying has been useful in the exploration for porphyry mineralization in the past and initial testing to determine its effectiveness in this situation would be worthwhile.

The objective of all of this work is to improve the understanding of the property and to attempt to develop targets for trenching and drilling that would be tested in a second stage of exploration. The likely costs of the various programs are set out in Table 26-1.

<b>TABLE 1-1 COSTS OF THE PROPOSED PROGRAM</b>	
<b>Sierra Development Services Inc. - Aldo Palma Showing</b>	
<b>Item</b>	<b>Can\$</b>
Claim staking	500
Road construction	5,000
Preparation of a digital database	5,000
Line cutting	3,300
Geological mapping	10,400
Ground magnetic survey	1,000
Geochemical survey (includes assaying)	5,400
Initial IP test	4,000
Report preparation	4,000
Sub-total	38,600
Contingency (10%)	4,000
<b>Total</b>	<b>42,600</b>



## 1.2. TECHNICAL SUMMARY

The Aldo Palma property is comprised of 13 contiguous, patented mining claims located in the Sault Sainte Marie Mining Division (Figure 4-1). The claims are located in the northwestern quadrant of Lastheels Township and are centred at about 84° 37′ West, and 48° 03′ North. The claims cover an area of 198.22 ha and are situated about 9 km east of Wawa, Ontario. All of the patents are wholly owned by Sierra, a corporation that is wholly owned by Mr. Aldo Palma. As with all Ontario patents, the claims include mineral and surface rights. The ownership of the timber rights for the patented mining claims is under review.

There are no available records discussing the initial discovery of molybdenite mineralization on the property. Falconbridge Mines Limited (Falconbridge) completed trenching and sampling in 1939 and while Deep Lakes Gold Mines and Noranda Exploration were reported to have sampled the property in 1943. There was a further period of exploration in the period 1958 to 1959 culminating with Billiton Maatschapij N.V. (Billiton) drilling 3 diamond drill holes. Algoma Central Railways is reported to have mapped the property in 1964. Mr. Aldo Palma acquired the property in 1974. Amax Minerals Exploration (Amax) optioned the property in 1978 and completed programs on trenching, mapping, ground magnetometry, percussion drilling and the completion of one short diamond drill hole that contained short intersections of Mo. Since that period, there have only been short visits in which further surface sampling was carried out.

The Aldo Palma property lies within the Michipicotin greenstone belt of the Wawa Subprovince that includes supracrustal rocks dated at 2.89 Ga, 2.75 Ga and 2.70 Ga. The property lies within the Hawk Assemblage, the oldest of the supracrustal rocks. The property is located close to the contact between a terrain comprised of trondhjemite, tonalite, diorite and supracrustal rocks and equigranular potassium-rich rocks of the Whitefish Lake Batholith. The most recent mapping by Amax concentrated on the southern margin of the property and much of the northern part of the property has not been mapped in detail.

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There are no current mineral resources or mineral reserves on the Aldo Palma property.

## **2. INTRODUCTION**

Mr. Neil N. Gow, P.Geo. was retained by Mr. Aldo Palma of Sierra Development Services Inc. (Sierra) to prepare an independent technical report on a molybdenum property (the Aldo Palma property) located in Lastheels Township east of Wawa Ontario. The office of Sierra is located at 35 Church Street, Suite 509, Toronto, ON, M5E 1T3. Mr. Palma is keen to market and develop the property and wishes to have a National Instrument 43-101 report indicating that the project is a property of merit and which he can use as a potential marketing document.

The Aldo Palma property is comprised of 13 patented mining claims located in the northwest quadrant of Lastheels Township (Figure 2-1). Mineralization has been known on the property for some decades and several periods of exploration have been completed on the claims.

Mr. Palma has assembled a complete record of the previous exploration. His database was made available to Gow. Discussions were held with Mr. Palma, who is knowledgeable about the history of work on his claims.

Gow visited the property October 8, 2013. Gow was accompanied by Mr. Palma and Mr. Anthony Pace, P.Geo. District Geologist, Ministry of Northern Development and Mines (MNDM), Sault Sainte Marie, ON and Mr. Ryan MacMillan, of the same office.

A fairly complete history of the Aldo Palma property has been assembled by Palma. These records were made available to Gow. Reports cited are listed in Chapter 27 of this report.

## 2.1. LIST OF ABBREVIATIONS

μ	micron	kPa	kilopascal
°C	degree Celsius	kVA	kilovolt-amperes
°F	degree Fahrenheit	kW	kilowatt
μg	microgram	kWh	kilowatt-hour
A	ampere	L	litre
a	annum	L/s	litres per second
bbbl	barrels	m	metre
Btu	British thermal units	M	mega (million)
C\$	Canadian dollars	m <sup>2</sup>	square metre
cal	calorie	m <sup>3</sup>	cubic metre
cfm	cubic feet per minute	Mo	molybdenum
cm	centimetre	min	minute
cm <sup>2</sup>	square centimetre	MASL	metres above sea level
d	day	mm	millimetre
dia.	diameter	mph	miles per hour
dmt	dry metric tonne	MVA	megavolt-amperes
dwt	dead-weight ton	MW	megawatt
ft	foot	MWh	megawatt-hour
ft/s	foot per second	m <sup>3</sup> /h	cubic metres per hour
ft <sup>2</sup>	square foot	opt, oz/st	ounce per short ton
ft <sup>3</sup>	cubic foot	oz	Troy ounce (31.1035g)
g	gram	ppm	part per million
G	giga (billion)	psia	pound per square inch absolute
Gal	Imperial gallon	psig	pound per square inch gauge
g/L	gram per litre	RL	relative elevation
g/t	gram per tonne	s	second
gpm	Imperial gallons per minute	st	short ton
gr/ft <sup>3</sup>	grain per cubic foot	stpa	short ton per year
gr/m <sup>3</sup>	grain per cubic metre	stpd	short ton per day
hr	hour	t	metric tonne
ha	hectare	tpa	metric tonne per year
hp	horsepower	tpd	metric tonne per day
in	inch	US\$	United States dollar
in <sup>2</sup>	square inch	USg	United States gallon
J	joule	USgpm	US gallon per minute
k	kilo (thousand)	V	volt
kcal	kilocalorie	W	watt
kg	kilogram	wmt	wet metric tonne
km	kilometre	yd <sup>3</sup>	cubic yard
km/h	kilometre per hour	yr	year
km <sup>2</sup>	square kilometre		

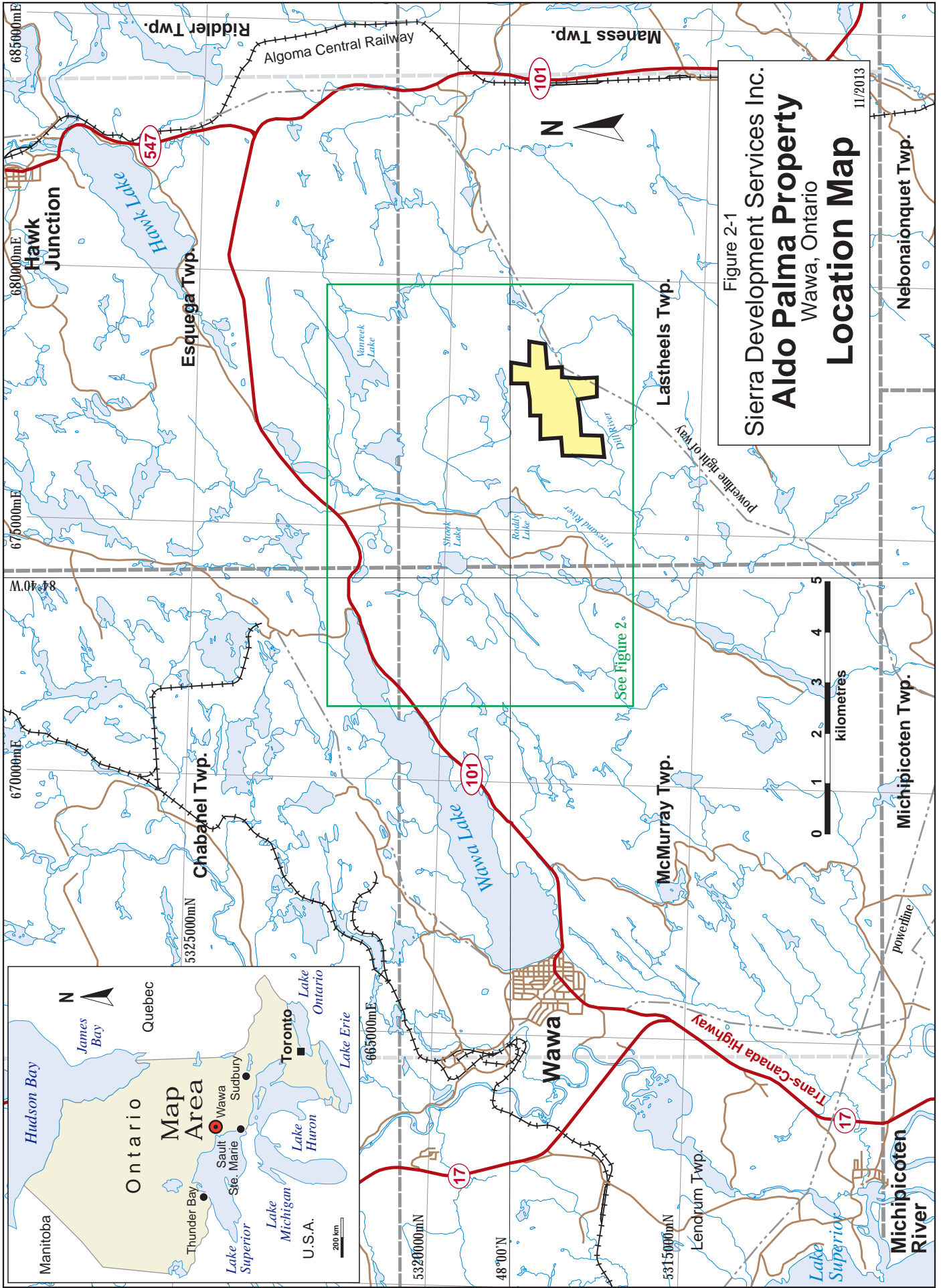
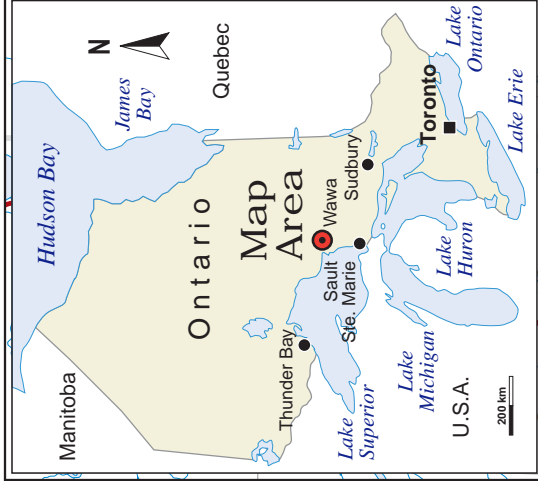


Figure 2-1  
 Sierra Development Services Inc.  
**Aldo Palma Property**  
 Wawa, Ontario  
**Location Map**  
 11/2013



See Figure 2.

### **3. RELIANCE ON OTHER EXPERTS**

This report has been prepared by Neil N. Gow, P.Geo. for Sierra Development Services Inc. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to Gow at the time of preparation of this report,
- Assumptions, conditions, and qualifications as set forth in this report, and
- Data, reports, and other information supplied by Mr. Aldo Palma and other third party sources.

For the purpose of this report, Gow has relied on ownership information provided by Sierra. The client has relied on an opinion by Mr. Jack A. Rotsztain of the legal firm of Kronis, Rotsztain, Margles, Cappel & Gertler of Toronto dated December 24, 1998.

Except for the purposes legislated under provincial securities laws, any use of this report by any third party is at that party's sole risk.

## 4. PROPERTY DESCRIPTION AND LOCATION

The Aldo Palma property is comprised of 13 contiguous, patented mining claims located in the Sault Sainte Marie Mining Division (Figure 4-1). The claims are located in the northwest quadrant of Lastheels Township and are centred at about 84° 37' West, and 48° 03' North. The claims cover an area of 198.22 ha and are situated about 9 km east of Wawa, Ontario. All of the patents are wholly owned by Sierra Development Services Inc., a corporation that is wholly owned by Mr. Aldo Palma. As with all Ontario patents, the claims include mineral and surface rights. Ownership of the timber rights has yet to be determined.

<b>TABLE 4-1 PATENTED CLAIMS, ALDO PALMA PROSPECT</b>		
<b>Mr. A. Palma - Aldo Palma Showing</b>		
<b>Claim Numbers</b>	<b>Area (ha)</b>	<b>Granting Date</b>
SSM 9096	13.40	October 12, 1955
SSM 11678	10.34	October 12, 1955
SSM 11683	17.66	October 12, 1955
SSM 11690	14.39	October 12, 1955
SSM 11691	11.53	October 12, 1955
SSM 11748	15.18	October 12, 1955
SSM 11815	17.72	October 12, 1955
SSM 11828	14.45	October 12, 1955
SSM 12684	20.90	October 12, 1955
SSM 12680	16.19	October 12, 1955
SSM 12681	15.23	October 12, 1955
SSM 12682	16.21	October 12, 1955
SSM 12685	15.02	October 12, 1955
Totals	198.22	

Total annual mining taxes as shown on documents of the Ministry of Northern Development and Mines for Ontario are \$792.83. Gow is advised that all payments are up-to-date.

Mr. Jack A. Rotsztain of the legal firm of Kronis, Rotsztain, Margles, Cappel & Gertler of Toronto examined title for the property in 1998 as part of the transfer of title from Mr. Aldo Palma to his wholly-owned company Sierra Development Services Inc. A copy of a letter dated December 24, 1998 was seen by Gow. A hydro right-of-way

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crosses the southeast corner of Claim SSM 11690. This right-of-way is licensed to Great Lakes Power Company through License No. 2529 (issued October 9, 1931). Since the license was issued, the powerline has been re-located.

Mr. Palma can hold the property indefinitely, provided that he maintains the payment of annual taxes and continues to update any required Government forms.

Currently, the property is surrounded on all sides by Crown land.

There are no known environmental liabilities associated with the property.



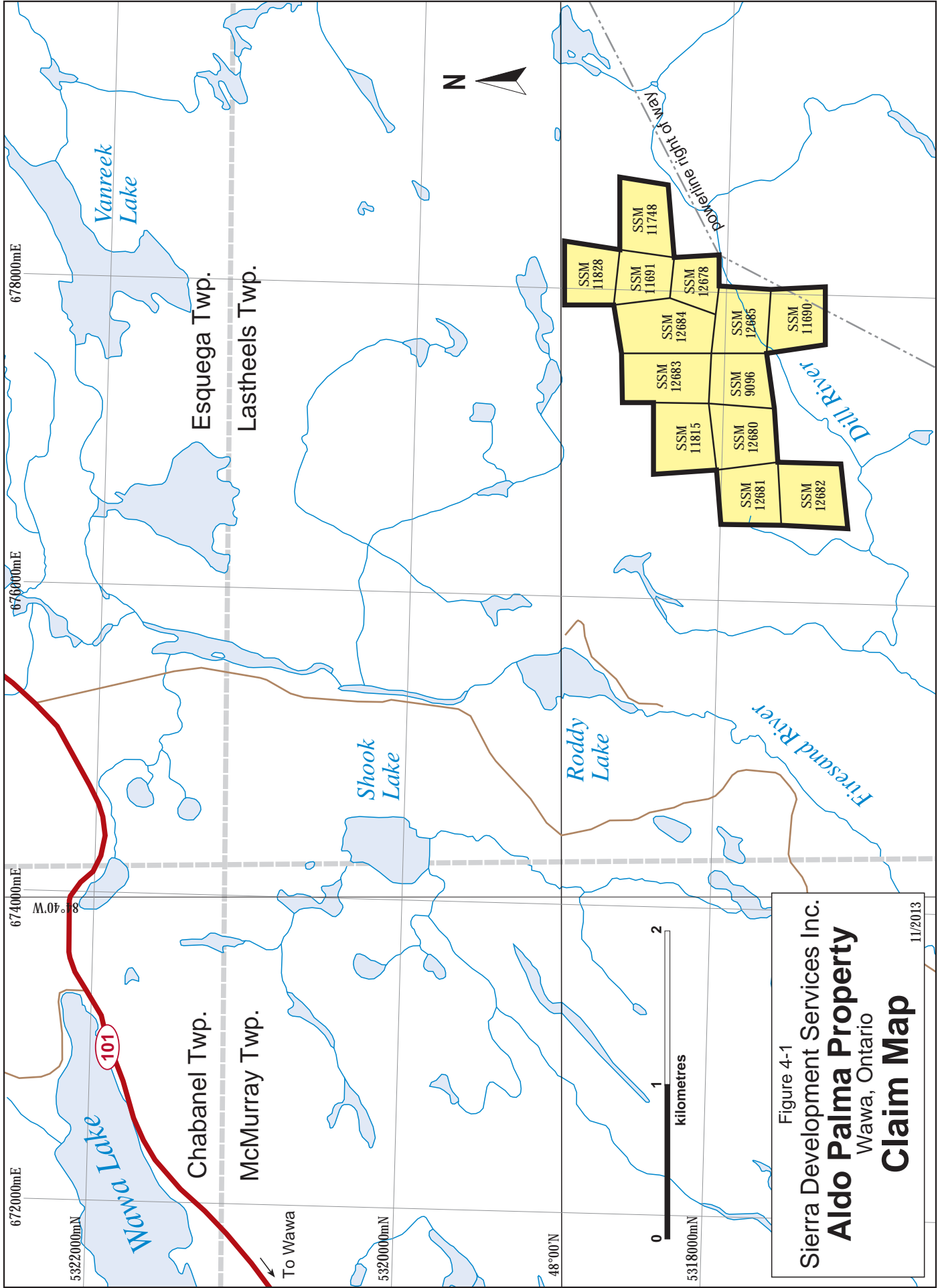


Figure 4-1  
 Sierra Development Services Inc.  
**Aldo Palma Property**  
 Wawa, Ontario  
**Claim Map**  
 11/2013

## **5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY**

### **5.1. ACCESSIBILITY**

The Aldo Palma property is located in west-central Lastheels Township and is about 9 km east of the town of Wawa, Ontario. Access to the property is currently difficult. Access may be gained by helicopter from Wawa Airport. The Firesand River Road leads to an area of logging that would allow access to within about 1 km south of the property provided at least one major culvert was restored and some road work completed.

According to the Algoma Forest 2010 to 2020 the Forest Management Plan of the Ontario Government has also licensed logging, in 2015, of an area northwest of the patented claims that is in part contiguous with the claims. Provided that this logging proceeds, access to the property margins will also be established along the northern perimeter of the property..

### **5.2. CLIMATE**

Wawa has a humid, continental climate that is moderated by its location adjacent to Lake Superior. January is the coldest month with a mean daily temperature of -14.8°C, while August is the warmest month with a mean daily temperature of 14.9°C. The town receives a rainfall of 727 mm and a snowfall of 329 mm, while total precipitation is reasonably evenly distributed throughout the year.

Obviously field mapping is only possible in summer, while drilling can be carried out throughout the year provided proper arrangements have been made.

### **5.3. LOCAL RESOURCES**

The town of Wawa is reported to have a population of about 3,000 people. Historically, the town has benefited from mining, forestry and the fur trade but each of these industries has suffered from declines over the past few years. There are resources for tourism in the area.

Wawa is located 227 km north of Sault Ste. Marie, ON. The Trans-Canada Highway passes through the town as does Highway 101. Hawk Junction, a station on the Sault Sainte Marie to Hearst, ON railway is located about 24 km northeast of Wawa. This railway line, part of the Algoma Central Railway, passes along the eastern border of Lastheels Township.

The township has supported mining and forestry in the past and is reasonably well located to obtain supplies and manpower resources through Wawa, Sault Sainte Marie, Timmins, ON and Thunder Bay, ON.

### **5.4. INFRASTRUCTURE**

There is no infrastructure on the property at this time.

### **5.5. PHYSIOGRAPHY**

Relief on the property is rugged, with the area of interest on the property occupying the crest and south slope of a long east-west ridge that stands about 75 m to 90 m above a local sand plain. The Dill River, a small, quick-flowing stream, runs westward along the southern edge of the claim group, at the boundary of an extensive sand plain and outcrop ridge.

A thick cover of mature timber made up of spruce, birch, and alder makes traversing the property difficult in summer months.

## 6. HISTORY

There are no known records of the initial discovery of mineralization in the Aldo Palma molybdenum deposit. It is reported in the Ministry of Northern Development & Mines (MNDM) records and by Skrecky (1979) that trenches and pits were initially excavated in the period 1936 to 1939. No records of this work have been seen by the writer.

Falconbridge Mines Limited (Falconbridge) is reported to have sampled the excavations with 52 channel samples in 1939. Values of 0.313% MoS<sub>2</sub> over 6.71 m were reported from one trench, and 0.373% MoS<sub>2</sub> over 6.25 m from a second trench west of the first. A sample from a muck pile 250 m further west returned 0.44% MoS<sub>2</sub>. Falconbridge did not complete further work.

Deep Lake Gold Mines (Deep Lake) acquired a property comprising 13 claims in 1943. The company is reported to have completed additional sampling and trenching. Four bulk samples are reported to have been assayed by the Mines Branch, Ottawa and returned values of 2.65%, 4.95%, 1.95% and 7.37% MoS<sub>2</sub> (MNDM, Toronto). These values appear to be inordinately high and it is not obvious what was sampled or whether some form of pre-concentration was used.

MNDM files in Sault Ste. Marie include a one-page summary of sampling, possibly carried out by Noranda Exploration Ltd. (Noranda) in 1943. One sample sent to the city of Noranda for testing assayed ¾ per cent MO (?) across a length of 15.25 m.

There is a hiatus in work until 1958 when International Ranwick Limited optioned the property. Subsequently, the company name was changed to International Molybdenum Mines Limited in 1959 and to Pax International Mines Limited in 1962. The company is reported to have completed sampling and geological mapping. An adit was planned but this stage of work was not undertaken.

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Aleva (1959) reported that Billiton Maatschappij N.V. (Billiton) optioned the property in 1958. Three diamond drill holes for an aggregate depth of 578 m. Aleva (1959) noted that core recovery for the holes was excellent. Billiton recognized five different granitic rock types during logging. It was noted that almost all of the mineralization was associated with quartz veins and that the drill holes had intersected about 400 separate veins. The best results obtained are set out in Table 6-1.

<b>TABLE 6-1 SIGNIFICANT DRILL RESULTS FROM BILLITON, 1958</b>					
<b>Mr. A. Palma - Aldo Palma Property</b>					
<b>Hole No.</b>	<b>From (m)</b>	<b>To (m)</b>	<b>Length (m)</b>	<b>Mo%</b>	<b>Notes</b>
DDH#1	60.96	64.01	3.05	0.09	
	64.01	67.06	3.05	0.07	0.61 m core loss
DDH#2	36.58	39.62	3.05	0.05	
	48.77	51.82	3.05	0.05	
DDH#3					No samples taken.

Billiton considered that the drill results were significantly lower than values obtained in surface samples from pits and trenches. Mineralization was interpreted as being contained in cigar-shaped horizontal bodies. Billiton (Aleva, 1959) considered that the values obtained precluded the opportunity of developing a larger deposit and dropped the option.

A record of the Resident Geologist's Office in Sault Ste. Marie lists a further drill hole of 116.7 m was completed in 1959 but this drill hole appears to be confused with the first of the Billiton drill holes completed in 1958 but reported on in 1959.

A separate record in the Resident Geologist's Office in Sault Sainte Marie lists property mapping by Algoma Central Railway in 1964.

## **7. GEOLOGICAL SETTING AND MINERALIZATION**

### **7.1. REGIONAL GEOLOGY**

The Aldo Palma property and the enclosing rocks lie within the Wawa Subprovince (Williams et al, 1991). The Wawa Subprovince is an aggregation of Archean greenstone belts and granitoid plutons that lies across much of the southern part of Ontario. Within the Wawa Subprovince greenstone belts comprise 20% to 30% of the subprovince separated by granitoid rocks of various types. The ages of the supracrustal rocks have been dated at 2.89 Ga, 2.75 Ga and 2.70 Ga.

The largest greenstone belt within the Wawa Subprovince is the Michipicoten greenstone belt (Figure 7-1). The belt is about 140 km long and reaches a maximum width of about 45 km. The eastern margin of the Michipicotin greenstone belt is terminated by the Kapuskasing Structural Zone. Regional mapping (see Williams et al, 1991) has delineated three discrete episodes of volcanism; the Hawk assemblage (~2.289 Ga), the Wawa assemblage (~2.75 Ga) and the Catfish assemblage (~2.700 Ga). The supracrustal rocks within the Aldo Palma prospect are considered to belong to the Hawk assemblage.

### **7.2. LOCAL GEOLOGY**

Lastheels Township (formerly Township 28, Range 23) is underlain by granitic rocks of the Superior Shield. Sage (1993) noted that in general granitic rocks are poorly exposed and the relationship between the granitic rocks and supracrustal rocks are poorly exposed. The Aldo Palma molybdenite prospect lies in proximity to the southern contact of a migmatitic terrain, composed of trondhjemite, tonalite, diorite and supracrustal rocks, and potassium-rich massive equigranular granitic rocks of the Whitefish Lake Batholith (Massey, 1985). A sample from the eastern side of Lastheels Township was dated using U-Pb techniques (Turek et al, 1982) at  $2,747 \pm 7$  Ma.

85°00'

84°30'

48° 15'

48° 15'

48° 00'

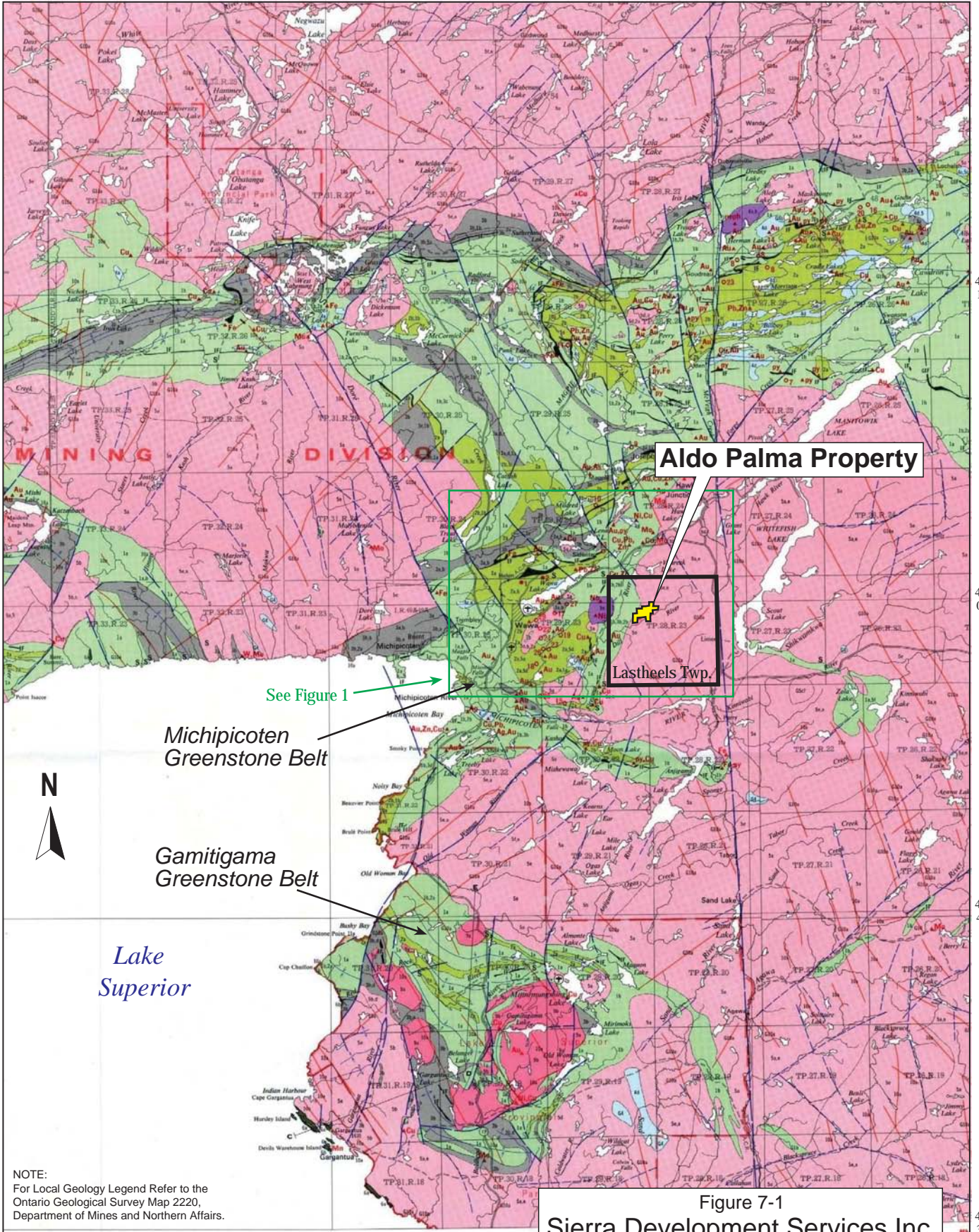
48° 00'

47° 45'

47° 45'

47° 30'

47° 30'



**Aldo Palma Property**

Lastheels Twp.

See Figure 1

Michipicoten Greenstone Belt

Gamitigama Greenstone Belt

Lake Superior

NOTE:  
For Local Geology Legend Refer to the Ontario Geological Survey Map 2220, Department of Mines and Northern Affairs.

Figure 7-1  
 Sierra Development Services Inc.  
**Aldo Palma Property**  
 Wawa, Ontario  
**Regional Geology**

11/2013

0 1 2 3 4 5  
kilometres

Sage (1993) reported that, at the Aldo Palma prospect, supracrustal xenoliths are not abundant and the gneissic structure is not well developed. Sage (1993) noted the presence of at least two phases of trondhjemite emplacement and at least one period of later potassium-rich granitic diking.

### 7.3. PROPERTY GEOLOGY

The bulk of all of the previous work has concentrated on the existing claim area of the Aldo Palma prospect. In this area the geology is comprised of a trondhjemite intrusive that is cut by aplitic and pegmatitic diking, with quartz-feldspar porphyries, mafic metasediments and metavolcanic rocks. The contact between the intrusive and the supracrustal rocks is transitional with intrusive diking in the greenstone rocks and numerous xenoliths along the edge of the intrusive. North of the mineralized area the rocks are variously described as supracrustal (Skrecky, 1980) or migmatitic (Sage, 1993).

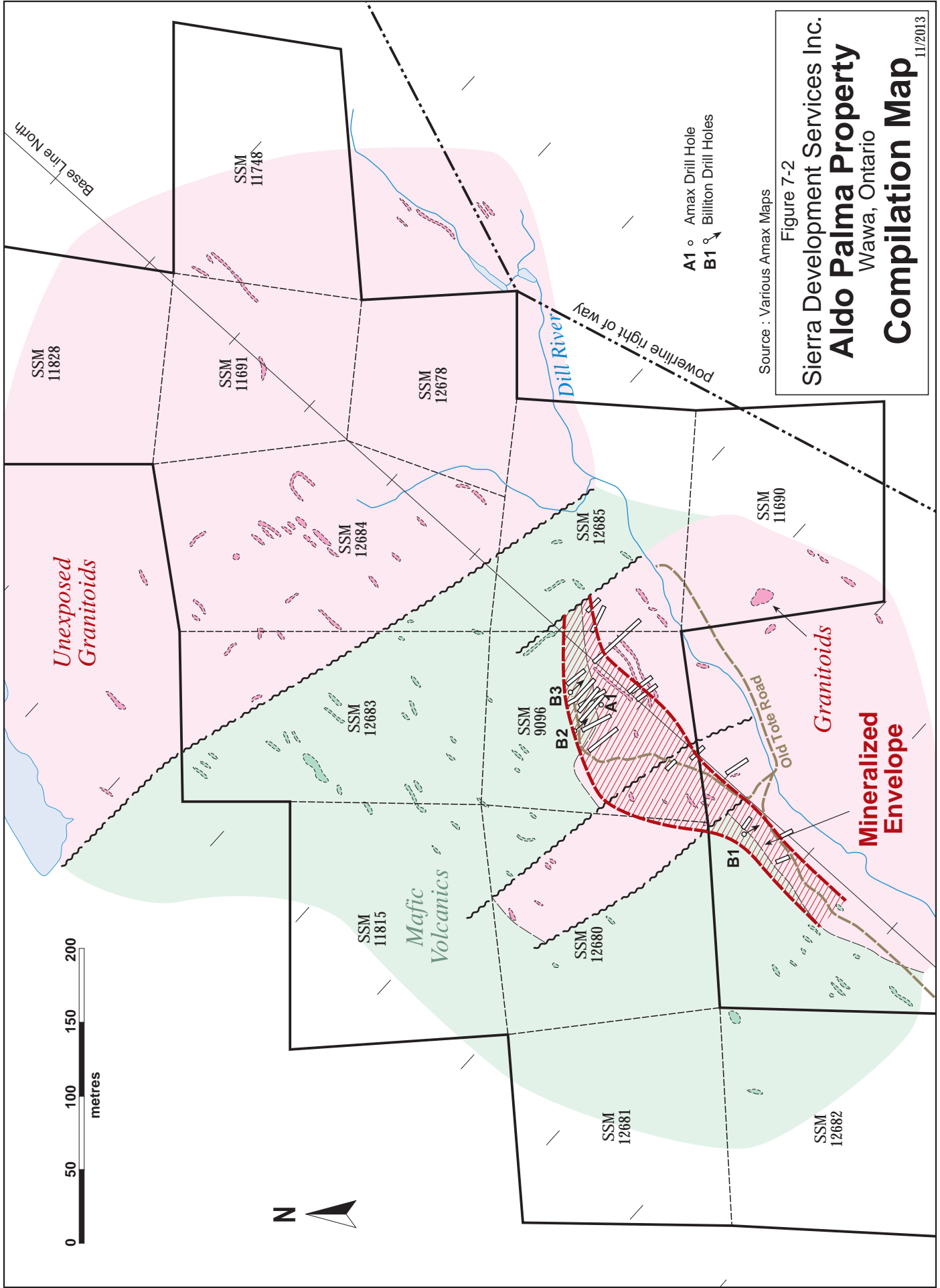
The trondhjemite is described by Skrecky (1980) as multiphase with a medium-grained phase making up most of the intrusive in the mineralized area. The rock is reported by Skrecky (1980) to be white-coloured, and to contain about 25% quartz, 70% plagioclase and 5% biotite. Both the supracrustal rocks and the trondhjemite are cut by potassic aplite and coarse-grained pegmatite dikes. Locally, iron and potassic alteration are present. The full extent of alteration has not been mapped.

Molybdenite mineralization is reported to occur as thin books, either disseminated through the walls adjacent to fractures, as fracture fillings, or in pockets or flakes in fractured quartz veining (Skrecky, 1980) (see Figure 7-2). The molybdenite books are generally 0.2 cm to 0.5 cm in size and up to 0.1 mm thick. Mineralization along any one fracture is highly erratic, varying from a thin plating to a 0.5 cm thick seam. Disseminations of molybdenite adjacent to fractures, where present, are usually only 1 cm to 2 cm thick, but Skrecky (1980) noted that lenses of disseminated molybdenite up to 25 cm thick and up to 1 m long had been observed.



Mineralized fractures often show alteration haloes generally consisting of potash enrichment up to 2 cm thick.

Trenching completed by Amax demonstrated that mineralization occurred in fractures and quartz veining over a strike length of about 875 m. The mineralization strikes 050° and dips northwesterly at between 15° and 40°. The exposed zone varies from 50 m to 200 m thick. Skrecky (1980) noted that the thinner parts of the zone exhibited continuous mineralization while mineralization was more patchy across the wider sections. Skrecky (1980) noted that trenching had demonstrated that the mineralization abutted a strike slip fault. Skrecky (1980) considered that a potential eastward extension may have been faulted off and was not noted at surface.



A1 ◦ Amax Drill Hole  
 B1 ◦ Billiton Drill Holes

Source : Various Amax Maps

Figure 7-2

Sierra Development Services Inc.  
**Aldo Palma Property**  
 Wawa, Ontario  
**Compilation Map**  
 11/2013

## 8. DEPOSIT TYPES

While some vein-type molybdenum deposits are known, the bulk of the world production of molybdenum is derived from large-tonnage, low-grade deposits. These porphyry-type deposits divide into a number of sub-types depending on geology and whether molybdenum is a major revenue metal or a by-product. Different molybdenum deposit-types discussed in the literature include:

- Climax-type Porphyry Molybdenum Deposits (Ludington and Plumlee, 2009) are identified as one such group. There are only 13 deposits included in the subtype and all are Late Cretaceous to Tertiary in age. They occur in postsubduction, extensional tectonic settings and are invariably associated with A-type granites. The plutons are invariably enriched in fluorine (commonly >1%), rubidium (commonly >500 ppm), and niobium-tantalum (Nb commonly >50 ppm). The deposits are typically high-grade (0.1% Mo to 0.3% Mo) and may be very large.
- Low-fluorine Stockwork Molybdenite Deposits (Ludington, Hammarstrom and Piatak, 2009) form a distinct group and are closely related to porphyry copper deposits. These deposits have a similar tectonic setting (continental volcanic arc) and petrology (calc-alkaline) to porphyry copper deposits. These deposits appear to be mainly restricted to the Cordillera of Canada and northwestern United States.
- Vein deposits with molybdenum have been described (Cox and Singer, 1987). Typically, molybdenum is a byproduct with tungsten or tin. Generally, these deposits are associated with greisen alteration.

The Aldo Palma deposit appears to be most closely related to the low fluorine stockwork deposit type. Alteration described by Skrecky (1980, 1981) based on his examination of alteration in diamond drill core appears to confirm this interpretation. Skrecky (1981) concluded that the Aldo Palma deposit shared alteration patterns similar to the later Cordilleran porphyry deposits.

## 9. EXPLORATION

Ownership of the property consisting of 13 patented mining claims was acquired by Mr. Aldo Palma in 1974. Mr. Palma continues to retain ownership under his wholly owned corporation.

Amax Minerals Exploration (Amax) optioned the Aldo Palma property in 1978. A summer field program in 1979 that included trenching and blasting to expose and delimit the mineralization, line-cutting was completed and mapping and ground magnetometry carried out (Skrecky, 1979). Skrecky (1979) reported that 472 m of trenching was completed using a backhoe. Maps of each of the trenches are held by Palma (Anon. 1979) but the trenches do not appear to have been sampled. Mineralization was confirmed over a strike length of about 875 m. This mineralized zone was reported to strike 050° and to dip northwest at 15° to 40°. Thickness was reported to vary between 50 m and 200 m. Skrecky (1979) recommended three diamond drill holes; two holes were designed to test the molybdenite veining and the third designed for the presence of a quartz porphyry body at depth.

The ground magnetic survey completed by Amax was interpreted by Watts (1980). Watts reached the following conclusions:

- Mafic dikes mask almost all other features of the magnetic survey.
- A number of north-south cross-features cut the gridded area. One such fault appears to terminate the eastern limit of mineralization (at line 2+50W) and another appears to influence the thickness of mineralization between lines 6+25W and 7+50W.
- The strike of the mafic dikes changes about 30° between lines 1+25W and 1+25E (from about 090° to 060°).
- No features related to mineralization were apparent.

Since the Amax work reported above in Chapter 6, there have been two visits to the property.

In 2004, Dr. Derek McBride, P.Eng. of Toronto, ON visited the property to complete verification sampling for a National Instrument 43-101 report. The McBride report was

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never completed. Three samples were collected. The type of sampling is not specified, but the samples were collected to test a suite of elements in different types of mineralization noted by McBride (2003). McBride noted in an e-mail that Sample 1001 was molybdenite-bearing material while Sample 1002 was massive pyrite. No description of Sample 1003 is available. The three samples were analyzed for a suite of 24 samples. Only values considered to be of interest are listed in Table 6-4

<b>TABLE 9-4 2004 SAMPLES COLLECTED BY MCBRIDE</b>							
<b>Sierra Development Services Inc. - Aldo Palma Showing</b>							
<b>Sample No.</b>	<b>Au ppb</b>	<b>Sc ppm</b>	<b>Ni ppm</b>	<b>Cu ppm</b>	<b>Zn ppm</b>	<b>Mo ppm</b>	<b>Pb ppm</b>
1001	438	<0.5	5	212	119	39259	374
1002	320	<0.5	25	13576	53181	51	102
1003	547	3.3	1660	5051	63	13	12

In 2006, prospectors including Mr. Karl Bjorkman of Atikokan, ON from a company Wilderness Walkabout visited the property to complete some sampling in the existing trenches. A brief memorandum was provided to Palma, together with sampling results completed by Accurassay Laboratories of Thunder Bay, ON. No specific sample locations were provided, nor is it apparent whether the samples represent grab samples or chip samples over specific lengths. Sampling results are set out in Table 6-5.

<b>TABLE 9-5 SAMPLES COLLECTED BY WILDERNESS WALKABOUT, 2006</b>			
<b>Sierra Development Services Inc. - Aldo Palma Showing</b>			
<b>Laboratory No.</b>	<b>Field No.</b>	<b>Mo ppm</b>	<b>Cu ppm</b>
143607	48356	8963	
143608	48357	8848	
143609	48358	4099	
143610	48359	18099	
143611	48360	10998	
143612	48361	799	
143613	48362	4397	
143614	48363	734	207
143615	48364	3447	
143616	48365	2627	
143617	48365	2492	
143618	48366	9509	
143619	48367	23142	
143620	48368	18982	
143621	48369	40789	

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143622	48370	2470	587
143623	48371	2190	
143624	48372	19171	
143625	48373	13561	
143626	48374	4887	
143627	48375	3121	
143628	48375	3653	
143629	48376	9164	
143630	48377	22456	
143631	48378	9926	
143632	48379	160954	
143633	48380	16609	
143634	48381	689	2286
143635	48382	1180	1555
143636	48383	44262	
143637	48384	838	417

Gow considers that this work is relevant. The sampling shows the widespread nature of the mineralization although the sampling should not be construed to indicate grade. These samples represent grab samples and should be considered in this light.

## **10. DRILLING**

Amax completed a program of percussion drilling and one (1) diamond drill hole.

Initially, Amax opted to carry out the drilling of 26 percussion holes sited in 19 locations late in 1979 (Yule, 1980). These holes were vertical or angled steeply to the southwest. In aggregate, 224 m of drilling was completed, thus the average hole length was about 8.6 m. Yule (1980) noted that recoveries only averaged 43% and he considered that an accurate assessment of the mineralization could not be determined. He recommended that three diamond drill holes be completed to give a more reliable test of the mineralization.

Table 10-1 sets out the results for the Amax percussion drilling.

<b>TABLE 10-1 SUMMARY OF AMAX PERCUSSION DRILLING RESULTS, 1979</b>					
<b>Mr. A. Palma - Aldo Palma Showing</b>					
<b>Hole No.</b>	<b>Hole Length (m)</b>	<b>Sample Length (m)</b>	<b>Mo%</b>	<b>Recovery %</b>	<b>Rock Type</b>
1	3.05	2.74	0.002	11	Granitic
1a	5.18	4.57	0.001	17	Granitic
1b	3.96	3.05	0.001	67	Granitic
2	15.24	14.63	0.011	24	Granitic
2a	10.36	9.45	0.028	52	Granitic
3	26.82	25.91	0.018	17	Granitic
4	14.33	12.80	0.021	8	Granitic
5	6.40	4.57	0.009	10	Granitic
6	11.28	11.28	0.007	54	Granitic
7	21.34	19.81	0.015	63	Granitic
8	12.19	10.67	0.101	64	Granitic
9	3.05	2.13	0.047	46	Granitic
9a	3.05	3.05	0.006	38	Granitic
10	3.66	3.66	0.044	48	Granitic
10a	3.35	3.35	0.008	62	Granitic
11	7.01	6.40	0.06	54	Granitic
12	2.44	2.44	0.036	50	Granitic
13	5.49	5.49	0.013	58	Granitic
14	9.75	7.92	0.001	22	Mafic
14a	6.10	6.10	0.0015	68	Mafic
15	20.42	18.90	0.012	64	Granitic
16	4.57	4.57	0.003	49	Mafic
17	1.52	1.52	0.002	16	Granitic
17a	10.67	10.67	0.118	55	Granitic
18	6.10	4.88	0.001	48	Mafic
19	6.71	5.49	0.001	64	Granitic
	224.03				

In August 1980, Amax drilled a vertical 58.8 m BQ diamond drill hole (numbered 945-02-21) beside percussion drill hole 17A. Molybdenite mineralization was observed over the entire length of the hole but Skrecky (1980) considered that only the first 10-metre section was close to what he considered 'ore-grade' at the time. Only parts of the drill hole were assayed. Assays reported are set out in Table 10-2.



<b>TABLE 10-2 RESULTS FROM DDH 945-02-21, 1980</b>			
<b>Sierra Development Services Inc. - Aldo Palma Showing</b>			
<b>From (m)</b>	<b>To (m)</b>	<b>Length (m)</b>	<b>MoS<sub>2</sub> ppm</b>
3.20	9.20	6.00	1448
9.20	13.59	4.39	284
13.59	16.42	2.83	250
43.50	48.06	4.56	401

Probably the most important conclusions from Skrecky (1980) were:

- Fracturing and associated alteration increased down the hole.
- Sericitic alteration gives way to potassic alteration at depth.
- The mineralized vein sets have a true thickness of about 10 m and dips between 25° and 30° northwest.
- If the fracturing is due to the intrusion of a high-level intrusive at depth to the north, then the brecciated and fractured hood of the intrusive could represent a good structural trap for the localization of molybdenite.

## **11. SAMPLE PREPARATION, ANALYSES AND SECURITY**

Records of the sample preparation, analysis and sample security are discussed in the Amax reports.

## **12. DATA VERIFICATION**

Gow visited the Aldo Palma prospect on October 8, 2013 accompanied by Mr. Aldo Palma, Mr. Anthony Pace, Resident Geologist, Ministry of Northern Development and Mines, Sault Sainte Marie and Mr. Ryan McMillan, Assistant Geologist, Ministry of Northern Development and Mines, Sault Sainte Marie. Entry to the property was by helicopter from Wawa. Traverses were made in the area worked by Amax. Since the work that was carried out by Amax was completed, the property has once again become overgrown. Many of the old trenches completed by Amax were located, although they would have to be re-established to allow proper sampling in the future.

Two grab samples of molybdenite mineralization were collected and sent to SGS Lakefield Research Limited (SGS). These samples were analyzed by Induced Coupled Plasma Mass Spectrometry for a standard 4-element package. Many of the elements reported are below the level of detection. Values obtained that are considered significant are included in Table 12-1.

<b>TABLE 12-1 ANALYTICAL RESULTS</b>		
<b>Sierra Development Services Inc. - Aldo Palma Property</b>		
<b>Element</b>	<b>Sample 19850</b>	<b>Sample 19851</b>
Molybdenum (ppm)	1010	6970
Copper (ppm)	25	93
Lead (ppm)	5	22
Scandium	<0.5	0.6
Zinc	6	41

These values appear to be reasonable based on previous work on the property. Higher copper values have been recorded in the past.

During the visit by Gow, Messrs. Pace and McMillan also completed some grab sampling. Three samples were collected and analyzed for a group of elements at the OGS Geoscience Laboratories located in Sudbury, ON. The publication prepared by Pace and McMillan (2014) is included in Appendix 1. The partial results for the samples collected by Pace are collated in Table 12-2.

<b>TABLE 12-2 OGS ANALYTICAL RESULTS</b>			
<b>Sierra Development Services Inc. - Aldo Palma Property</b>			
<b>Element</b>	<b>001-Aldo-2013</b>	<b>002-Aldo-2013</b>	<b>003-Aldo-2013</b>
Molybdenum (ppm)	1456	23	387
Copper (ppm)	18	19	112
Lead (ppm)	3	13	15
Scandium (ppm)	<1	1	4
Zinc (ppm)	<8	25	87
Silver (oz/t)	<0.1	<0.1	0.1

The range of values in the samples collected by Pace are similar to the ranges of samples collected by Gow.

Pace also arranged for a Scanning Electron Microprobe examination of some of the sulphide material and wall rocks. Both molybdenite and potassium feldspar were identified.

## **13. MINERAL PROCESSING AND METALLURGICAL TESTING**

Palma has completed no metallurgical testing in respect of the Aldo Palma prospect.

## **14. MINERAL RESOURCE ESTIMATES**

There are no current Mineral Resource estimates for the Aldo Palma prospect.

## 15. MINERAL RESERVE ESTIMATES

There are no current Mineral Reserve estimates for the Aldo Palma prospect at this time.

## **16. MINING METHODS**

This section is not pertinent to this project. The property is not an advanced stage property. No mining has been performed on the property.



## **17. RECOVERY METHODS**

This section is not pertinent to this project. The property is not an advanced stage property. There have been no operations and no recovery on the property.

## **18. PROJECT INFRASTRUCTURE**

This section is not pertinent to this project. The property is not an advanced stage property. There are no logistic and infrastructure requirements at this time for the property.

## **19. MARKET STUDIES AND CONTRACTS**

This section is not pertinent to this project. The property is not an advanced stage property. There are no market studies or contracts for the property at this time.

## **20. ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT**

This section is not pertinent to this project. The property is not an advanced stage property. There are no environmental studies, permitting and social or community impact studies for the property at this time.

## **21. CAPITAL AND OPERATING COSTS**

The property is not an advanced stage property. There are no capital or operating costs for the property at this time.

## **22. ECONOMIC ANALYSIS**

This section is not pertinent to this project. The property is not an advanced stage property. No economic analysis has been performed for the property.

## 23. ADJACENT PROPERTIES

There are no current third-party mineral claims contiguous with the Aldo Palma claims.

While there has been a significant amount of historical exploration and mining in McMurray Township (contiguous with Lastheels Township to the west) and further exploration in Esquega Township (contiguous with Lastheels Township to the north), there has been significantly less exploration in Lastheels Township. Much of the previous exploration within Lastheels Township has focused on the eastern margin of the Firesand River Carbonatite with only limited success (Erdosh, 1976). The major part of the Firesand River Carbonatite occurs within McMurray Township but part of it extends into the northeastern part of Lastheels Township.

## **24. OTHER RELEVANT DATA AND INFORMATION**

There is no known data that is considered relevant to this report at this time.



## 25. INTERPRETATION AND CONCLUSIONS

The Aldo Palma property, located east of Wawa, has received intermittent exploration since its discovery during the 1930s. Widespread molybdenite mineralization, located in quartz veins has been located and partially tested by a number of companies. The most recent campaign of exploration was completed by Amax (Yule, 1980). The program included trenching and the drilling of 21 percussion holes and 1 diamond drill hole. Skrecky (1981) completed a thesis on the property and recognized that the prospect was likely related to porphyry molybdenum mineralization. The work completed by Skrecky (1981) showed the presence of an alteration pattern consistent with his proposed model. Skrecky (1980) interpreted the results of the single shallow diamond drill hole completed by Amax as showing the likelihood of increased alteration with depth.

The Amax exploration concentrated on an area of mineralization located along the southern boundary of the property. The Amax work did not include any mapping or sampling away from this showing area. Based on incomplete older reports from the late 1950s, other areas of mineralization were examined. There are no records of the results of this work available at this time but it is considered to give some encouragement for a re-examination of the property.

Further exploration should concentrate on testing for the presence of porphyry-molybdenum-style of mineralization.

## 26. RECOMMENDATIONS

The Aldo Palma molybdenum property was discovered in the mid-1930s. The last significant project was completed in the late 1970s and early 1980s by Amax. Ultimately, this work was not as complete as it might have been. The property is considered to be worthy of further exploration. While much of the major known area of molybdenum mineralization is protected by patented claims, part of the mapped mineralization extends off the claims. This area should be staked as a matter of urgency prior to attempting to option the property to external parties. It is considered worthwhile to stake claims along the northern and eastern boundaries as well.

While there is not a large amount of previous exploration, the historical data are present at different scales and relate to ad hoc grids. The development of a digital database would be worthwhile.

Prior to any concerted fieldwork, road access should be established. Logging has occurred to within two kilometres of the property but the road access to the logged area was impassible at the time of the property visit by Gow. Further, this access through the logged area lies on the south side of the Dill River. Arrangements with logging companies may allow this access to be developed more cheaply.

The property needs to be remapped. The Amax mapping is useful but did not extend beyond the main area of showings. There are references to mineralization in some of the older literature but none of the details of these apparent showings are available. Amax completed a ground magnetic survey over the main showing area and this work was interpreted to elucidate structure. Coverage of the entire property is considered likely to be useful. Depending on the success of the mapping, a geochemical survey should be completed with the aim of locating unexposed mineralization. A soil geochemical survey may help to locate or extend areas of surface mineralization. It was unclear from the property visit that there was a worthwhile soil profile for much of the property.

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Induced polarization (IP) surveying has been useful in the exploration for porphyry mineralization in the past and initial testing to determine its effectiveness in this situation would be worthwhile.

The objective of all of this work is to improve the understanding of the property and to attempt to develop targets for trenching and drilling that would be tested in a second stage of exploration. The likely budget of the various suggested programs are set out in Table 26-1.

<b>TABLE 26-1 BUDGET FOR THE PROPOSED STAGE ONE PROGRAM</b>	
<b>Sierra Development Services Inc. - Aldo Palma Showing</b>	
<b>Item</b>	<b>Can\$</b>
Claim staking	1,000
Road construction	5,000
Preparation of a digital database	5,000
Line cutting	3,300
Geological mapping	10,400
Ground magnetic survey	1,000
Geochemical survey (includes assaying)	5,400
Initial IP test	4,000
Report preparation	4,000
Sub-total	39,100
Contingency (10%)	4,000
Total	43,100

## 27. REFERENCES

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## **28. SIGNATURE PAGE**

This report titled “Aldo Palma Molybdenum Property, Lastheels Township, Wawa Ontario” and dated April 2, 2014 was prepared by and signed by the following author:

(signed)

Date  
April 2, 2014

Neil N. Gow, B.Sc. (Hons.), P. Geo.  
Consulting Geologist

## **29. CERTIFICATE OF QUALIFICATIONS**

### **NEIL N. GOW**

I, Neil N. Gow, P.Ge., as an author of this report entitled “Aldo Palma Molybdenum Property, Lastheels Township, Wawa Ontario”, prepared for Sierra Development Services Inc., and dated April 2, 2014, do hereby certify that:

1. I am a Consulting Geologist. My office address is Suite 1400, 80 Richmond Street West, Toronto, ON M5H 2A4
2. I am a graduate of University of New England, Armidale, NSW, Australia, in 1966 with a Bachelor of Science degree in Geological Sciences.
3. I am registered as a Professional Geologist in the Province of Ontario (Reg. #433). I have worked as a geologist for a total of 47 years since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Review and report as a consultant on numerous exploration and mining projects around the world for due diligence and regulatory requirements.
  - VP and Director of an exploration branch of a major Australian mining company in Canada.
  - Senior Geologist with a major Australian mining company in charge of base metal and uranium exploration in the Northern Territory of Australia, bauxite exploration in southeast Asia and parts of Africa, nickel exploration in New Caledonia.
  - Senior Mine Geologist in charge of exploration and reserve estimation programs at a large base metal mine in NSW, Australia.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I visited the Aldo Palma Molybdenum Property on October 8, 2013.
6. I am responsible for all of the Technical Report.
7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
8. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

**NEIL GOW CONSULTING GEOLOGIST**

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Dated 2<sup>nd</sup> day of April, 2014

(signed)

Neil N. Gow, P.Geol

## **APPENDIX 1**

Pace, A. and McMillan, R., 2014, Aldo Palma Molybdenite Showing. In Report of Activities, 2013 Resident Geologist Program, Timmins Regional Resident Geologist Report: Timmins and Sault Ste. Marie Districts. (Sault Ste. Marie District), OFR 6294, pp 27-31

### **Aldo Palma Molybdenite Showing**

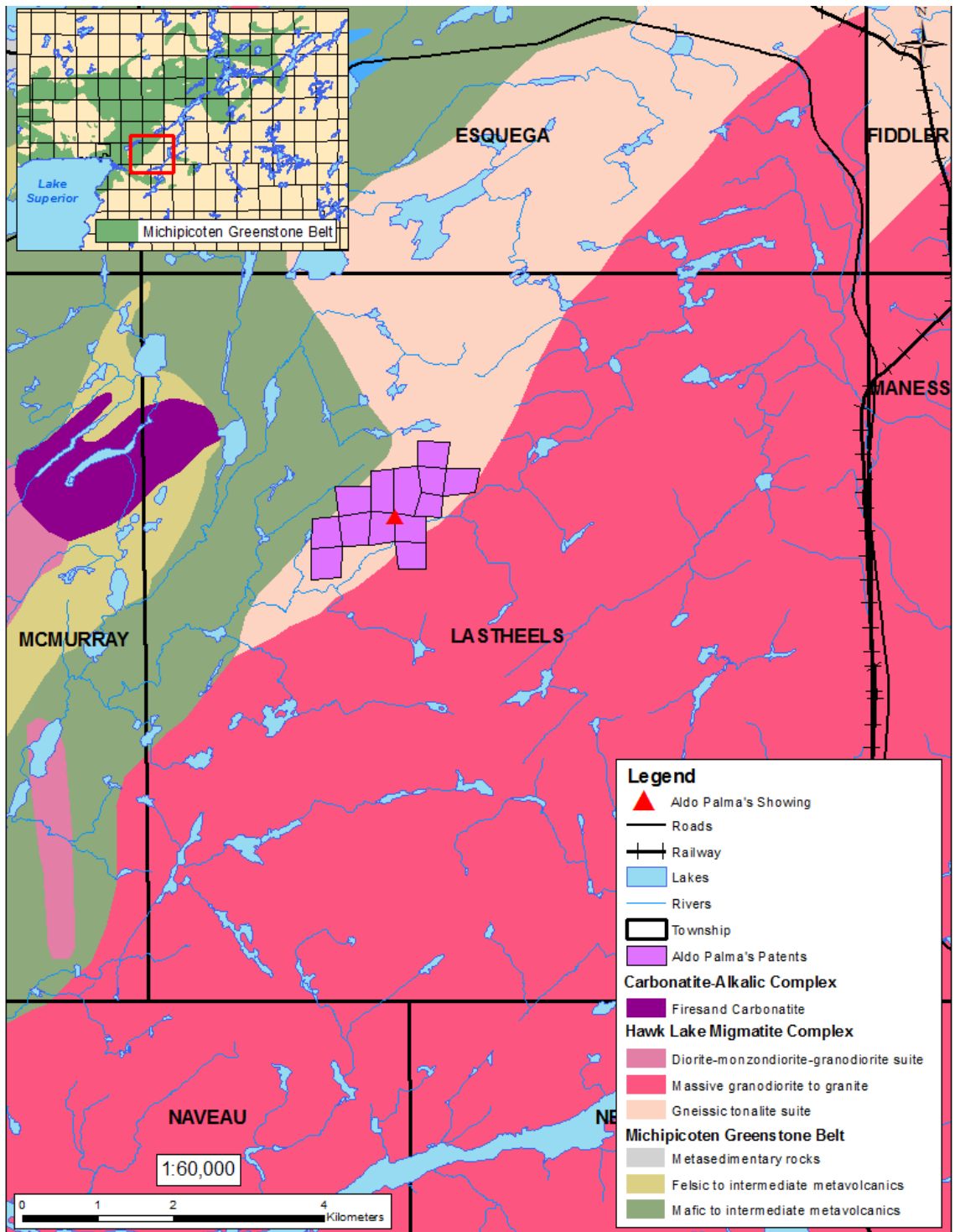
#### **REGIONAL GEOLOGY**

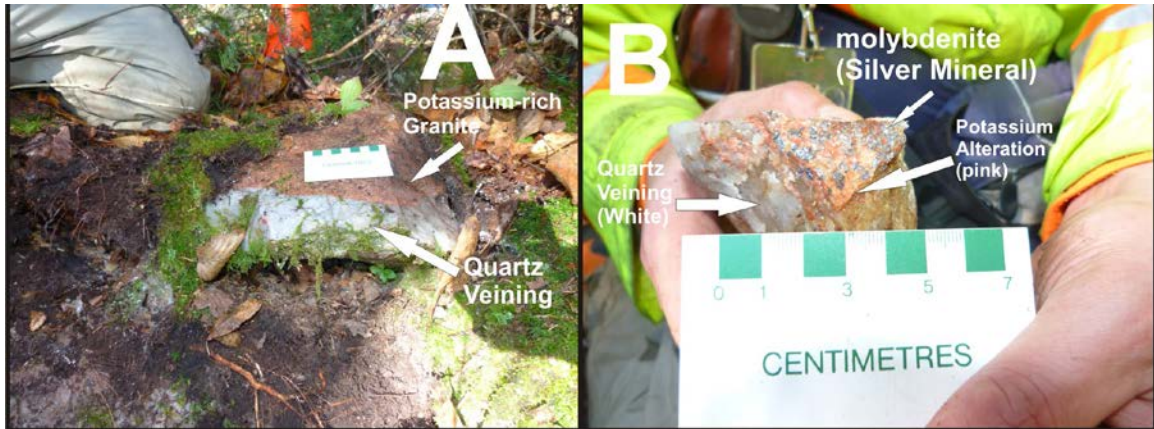
The area is underlain by supracrustal rocks of the Michipicoten greenstone belt and the Hawk Lake Migmatite Complex. In Lastheels Township, the contact between the supracrustal and granitic rocks is poorly defined. Feldspar porphyry bodies appear to intrude both the greenstone sequence and the migmatite complex. Diabase dikes also cut both rock types and trend subparallel to the main intrusive contact. Lamprophyric dikes cut all of the rock types present and lie subparallel to the diabase. The Late Proterozoic Firesand River Carbonatite Complex underlies the northeast corner of McMurray Township and extends into Lastheels Township. The carbonatite occurs at the intersection of the Wawa–Hawk Lake fault with the Firesand River fault. This carbonatite has been dated by Gittins, Macintyre and York (1967) as being 1008 and 1087 Ma in age, equivalent to many carbonatites that occur along the Kapuskasing Structural Zone extending northeastward from the Wawa area. The lamprophyre dikes identified in the area may be associated with the nearby Firesand River Carbonatite Complex.

#### **PROPERTY GEOLOGY**

The Aldo Palma showing is held under a series of 13 patented mining claims in the northwest portion of Lastheels Township. The patented mining claims are owned by Aldo Palma through a private company, Sierra Development Services Inc. The history of exploration activity conducted on the Aldo Palma showing property from 1936 to 1980 is shown in Table 14. A property visit was made by the staff of the Sault Ste. Marie District Geologist office in the 2013 field season to investigate the molybdenite mineralization that has previously been explored on the property. The mineral showing is documented in the Mineral Deposit Inventory (MDI) database as MDI41N15NE00080 (Ontario Geological Survey 2013). The molybdenite showing lies within a potassium-rich, massive, equigranular granitic section of the Hawk Lake Migmatite Complex known as the Whitefish Lake batholith (Figure 8). The granitic section is medium- to coarse-grained, light pink to reddish in colour and composed of quartz, plagioclase and biotite (Figure 9A). The alignment of biotite in the coarse-grained portions of the granite forms a foliation. The molybdenite mineralization occurs in fractures with associated quartz veining hosted within the granitic rock. Because of the brittle nature of the quartz veining it is very susceptible to fracturing, allowing mineralization to occur as pods within the fracture veins or to be disseminated through the walls adjacent to the fractures (Figure 9B). The mineralization occurs over a strike length of 875 m, striking 050° and dipping to the north at an angle of 15 to 40°. The mineralized areas around the granite are light pink to reddish in colour; samples 001-Aldo-2013 to 003-Aldo-2013 taken from these mineralized areas during the field visit exhibit high potassium and iron content, expressing a strong potash and iron enrichment (*see* Table 15). Additionally, these samples returned assay values of 1456 ppm Mo for sample 001-Aldo-2013 and 386 ppm Mo and 4 g/t Ag for sample 003-Aldo-2013.







**Table 14.** History of exploration activity conducted on the Aldo Palma Showing property from 1936 to 1980.

Company	Work Done	Date	Results
Unknown Falconbridge Mines Ltd.	Trenching and pits	1936–1939	No mineralization results Average from 52 channel samples is 0.192% MoS <sub>2</sub> . Samples taken from other trenches include 0.313% MoS <sub>2</sub> over 22 feet (6.7 m), 0.373% MoS <sub>2</sub> over 20.6 feet (6.3 m) and 0.49% MoS <sub>2</sub> .
	Channel sampling existing trenches	1939	
Deep Lake Gold Mines Ltd.	Trenching, sampling, bulk sampling	1943	Assays from 4 bulk samples include: 2.65%, 4.02%, 1.95% and 7.3% MoS <sub>2</sub> .
International Ranwick Ltd., Pax International Mines Ltd., Billiton Company	Trenching, 3 diamond-drill holes	1958	Sampling from trenches include: 0.08% and 0.13% MoS <sub>2</sub> . No significant mineralization from the diamond drilling.
Amax Minerals Exploration	Trenching, stream sediment survey, magnetic survey, 26 percussion drill holes	1980	No significant mineralization reported.

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**Table 15.** Geochemical data for samples taken during a property visit to the Aldo Palma showing. All analyses were performed at the OGS Geoscience Laboratories, Sudbury. UTM coordinates are NAD 83, Zone 16

<b>Easting</b>	677464	677463	677593
<b>Northing</b>	5317783	5317799	53117961
<b>Sample</b>	<b>001-Aldo-2013</b>	<b>002-Aldo-2013</b>	<b>003-Aldo-2013</b>
Al	15 782	42 860	66 775
Ba	90.1	291.3	258
Be	0.36	1.77	3.02
Bi	0.173	0.028	0.16
Ca	435	3470	9211
Cd	1.3	0.05	0.63
Co	1.4	0.9	3.1
Cr	70	148	24
Cs	0.13	0.48	3
Cu	18	20	116
Fe	3118	4137	15 824
Ga	4.96	13.32	23.59
Hf	0.17	1.23	3.3
K	11 899	16 542	18 267
Li	0.5	3.2	25.4
Mg	29	479	2509
Mn	15	209	411
Mo	1456.64	22.88	386.65
Na	4506	20 697	28 910
Nb	1.58	5.48	18.06
Ni	3	3	3
P	19	51	196
Pb	3	13.5	15.2
Rb	24.63	56.69	103.18
Sb	0.26	0.1	0.04
Sc	0.9	1.4	4.3
Sm	0.2	1.28	5.57
Sn	0.27	1.57	6.46
Sr	7	43	94
Ta	0.2	0.7	3
Th	0.78	4.68	13.48
Ti	30.78	201.75	1113.78
Tl	0.08	0.23	0.44
U	0.11	1.14	5.77
V	10	10	18.45
W	0.5	0.5	0.98
Zn	8	25.21	87.18
Zr	5	34	86
Total REE	2.143	32.91	152.619
FeO	0.16	0.29	1.39
CO <sub>2</sub>	0.16	0.25	0.85
S	0.08	0.01	0.16

## **CONCLUSION AND RECOMMENDATION**

The Aldo Palma molybdenite occurrence resembles a vein-type molybdenite showing.

The fracturing observed on the property during the 2013 field visit directly controls the mineralization, as the mineralized trend is parallel to the strike of the fracture and not the strike of the quartz veining. The extensive potassium alteration observed along the mineralized fracture zone provides evidence of hydrothermal alteration that may have been generated by the emplacement of a high-level intrusion. Several quartz-porphyry dikes were encountered during the course of mapping on the property by Amax Minerals Exploration (1979). The presence and age of the Late Proterozoic Firesand River Carbonatite Complex coincides with the location and inception of the nearby Midcontinent Rift, implying that the former is related to a major tectonic event. The presence of the Firesand River Carbonatite Complex and the late quartz-porphyry intrusions suggests that these events occurred during the same time period and are responsible for the mineralization examined at the Aldo Palma showing.