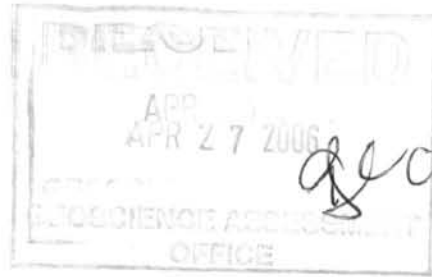


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# Spanish River Carbonatite Complex

## Biotite Test Pit

### Prospecting Report

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## Spanish River Carbonatite Complex – Claim 1198154 Prospecting Program

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## INTRODUCTION

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To date all material distributed from the current quarry has been residuum. Seismic surveys conducted by International Minerals and Chemical Corp. in 1975 suggested the residual layer was approximately 15 metres before bedrock. Though extraction of residuum remains the primary focus the development of a rock face for the purpose of mineralogical, geochemistry and metallurgical testing is necessary for future market development and testing product effectiveness.

As the demand for agrominerals increases AMP has had continual requests for specialty products such as rock apatite and biotite mica (potassium) to be utilized in the professional horticultural and retail organic markets.

To respond to these potential markets and test the effectiveness of rock material and 200 tonne bulk sample has commenced of this material. This bulk sample will be subject to crushing, mechanical separation. Geochemistry, mineralogical and finally field tests will be conducted on raw material and concentrates. The 200 tonne bulk sample has been taken but detailed crushing, geochemistry, and mineralogical and metallurgical test work remains to be done.

As well as separating apatite and biotite concentrates from rock sovite exploration activities are currently underway to locate residual apatite and biotite mineralization. Original exploration located an area of residual vermiculite associated with a geophysics magnetic high. Preliminary trenching was able to delineate a vermiculite zone. This winter exploration program entailed a large test pit where vermiculite mineralization was the strongest in hopes of finding a biotite source underneath the residual layer.

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## PROPERTY DESCRIPTION AND HISTORY

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### PREVIOUS WORK

In 1955 Johns-Mansville Company performed a ground magnetometer survey over what is now referred to as the Spanish River Carbonatite Complex. The purpose for this survey was to find vermiculite. The Ontario Department of Mines in 1962 reinterpreted this data, which outlined an oval shaped magnetic high, which they believed to be a carbonatite.

In 1968 Union Carbide Exploration made a rough surface geological map and drilled a 1746-foot drill hole in search of niobium, copper and rare earths. Outcrop of the Carbonatite is scarce and the main oval shape and size of the deposit was primarily the result of magnetometer work and the one drill hole.

Jenmac Company Ltd. in 1960 completed a trenching program. This work was the basis of the 1962 ODM work and geological mapping by Union Carbide. It was also the point of reference for the Junior Mine Services Ltd. (JMS) 1996 trenching program ultimately leading to the Burns Mine.

In 1975 International Minerals and Chemical Corp. completed a seismic survey over the complex in an effort to determine overburden thicknesses. This was followed up with four reverse-circulation drill holes in an attempt to locate residual apatite. This work has been reinterpreted and included in JMS's 1996 trenching and stripping work. Of particular significance is the depth of what is referred

to in the seismic data as the dense layer. Trenching has revealed that this dense layer represents a residuum capping the bedrock. This work has been used to establish ore reserves for the residuum covering the 1962 bulldozer trenches and 1996 follow-up trenching program. At the present time the residuum, whether carbonatite or biotite-pyroxenite represents the mined product.

Ron Sage from Ministry of Northern Mines and Development completed a geological report on the complex in 1987. Dr Sage has subsequently visited the site on several occasions to review work conducted by AMP.

From 1955 through to 1975 no niobium, uranium and residual apatite mineralization was located. Ironically, this feature of the Spanish River Carbonatite coupled with unusually high sovite content makes it ideal for organic agricultural use.

The original Spanish River property consisted of six mining leases and 5 unpatented claims in Venturi and Tofflemire Townships. All claims originally were 100% owned by Junior Mine Services Ltd. ("JMS"). In 1999 Agricultural Mineral Prospectors Inc. (AMP) was incorporated and optioned the property from JMS. The new company was formed to run all activities associated with the Spanish River Property and is controlled and run by the principles of JMS. Chris Caron and John M. Slack hold the unpatented claims in trust. Subsequent staking has added an additional 6 claims, which are held by either John M. Slack or Chris Caron in trust on behalf of AMP. The list of leases and mining claims that comprise the Spanish River Property are listed in table: 1.

The property was optioned because of the likelihood of locating sufficient reserves of the minerals calcite, apatite, biotite and vermiculite for the purpose of selling to organic farmers, market and backyard gardeners. From 1994 through to 1996, JMS conducted several site visits collecting samples, preliminary geological mapping and assaying. The purpose of the sampling was to determine consistency of material and potential toxic elements. This was critical to ensure Spanish River Carbonatite would be approved under the organic guidelines. The samples collected were crushed, screened and used in garden test plots and fed as mineral supplement to small flocks of layer hens. Coinciding with these activities JMS began extensive market studies and research into organic agricultural practices and accepted soil mineral amendments.

In 1996 JMS conducted a trenching and bulk sample program to delineate potential zones of aforementioned minerals, either alone or combined. The program was successful in locating three areas that could be used as a source of nutrients and soil amendments for organic agriculture. As a result a 100 tonne bulk sample was taken and shipped to our farms in Southern Ontario. This material was used in test gardens on the farm, turf applications, layer hen mineral supplement and finally field trials in the Chatham-Kent area.

Following these initial trials we began a comprehensive research and investigation of soil mineral deficiencies, organic and conventional farming practices, weathering characteristics of Spanish River Carbonatite including soil geochemistry and biogeochemistry. From January 1998 until to May 2000 this was the total focus and only business activity carried out by AMP, employing three people full time. In the spring of 2000 AMP commenced an advanced exploration program comprising of stripping, trenching, sampling and a second 1000 metric tonne bulk sample. That same year AMP obtained a quarry permit covering the original six patented claims. To date approximately 18,000 tonnes has been quarried and distributed in Ontario, Quebec, Vermont, New York, Michigan, Pennsylvania and Virginia.

## **CURRENT EXPLORATION PROGRAMS**

In 1996 the original a small test pit on claim 3002843 located an area of massive sovite hosted in fenitized quartz monzonite. The sovite located in this area was of high purity and lacked biotite, apatite and magnetite mineralization. Trenching and prospecting activities in this area started in the fall of 2002.

In 2003 a total of 9 trenches and one test pit have been excavated to define what was referred to as Zone 4. This work was able to cut and delineate numerous sovite veins and seams none of them of any economic significance. The area exposed is predominantly fenitized host quartz monzonite with an abundance of fracture fillings comprised of sovite and pyroxene. The sovite veins, though of high purity are narrow and discontinuous in this vicinity.

2004 explored a series of altered fenite, sovite float boulders, geological mapping and preliminary scintillometer investigations.

2005 exploration activities started to evaluate the rock sovite underneath the residuum layer.

### **Location and Access**

The Spanish River Carbonatite Complex straddles the common boundary of Venturi and Tofflemire Townships just south of a sharp bend in the Spanish River known as the "Elbow". The property is cut by numerous, very well maintained, logging roads.

Access to the property is via the Fox Lake Lodge road, which turns off highway 144 at Cartier. From Cartier it is 25 km to the property. At present AMP and Fox Lake Lodge maintains the main road. All river and creek crossing have had culverts and bridges put in place to handle heavy logging trucks. Road infrastructure is excellent and required very little upgrade.

Cartier is the closest town, a village with approximately 500 inhabitants. Within the town limits is a rail spur owned by C.P.R. Sudbury is approximately 50 kilometres south of Cartier on highway 144. Total driving time from Sudbury to the property is 1½ hours.

Accommodation was at Saunders Greenhouse located on highway 144 between Chelmsford and Dowling, Ontario.

### **MINING CLAIMS & LEASES**

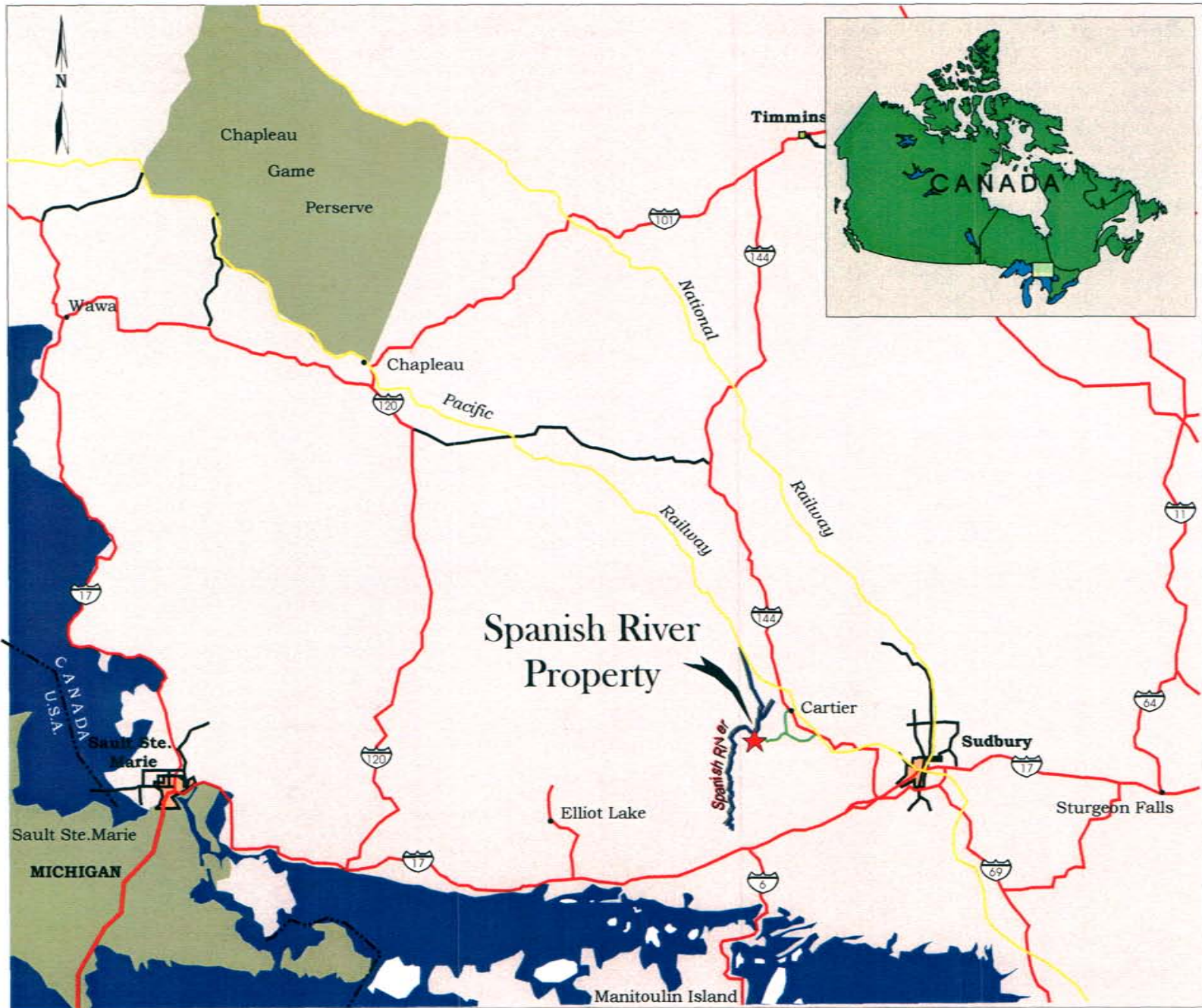
The Spanish River Carbonatite Complex property consisted of 8 mining claims and 6 leased located in Tofflemire and Venturi townships, district of Sudbury. The mining claims are 100% owned by Agricultural Mineral Prospectors Inc. and held in trust by Chris Caron (C38620) and John Slack.

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## **GENERAL GEOLOGY OF SPANISH RIVER COMPLEX**

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The Spanish River Carbonatite emplacement occurred between  $1790 \pm 90$  Ma to  $1883 \pm 95$  Ma the same time as the Sudbury norite. This suggests that the to alkalic magmatic events are related and the Sudbury eruptive may account for the alkaline glasses of the Onaping Formation.



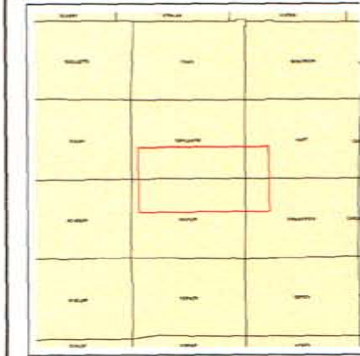
Spanish River Property Location Map

Figure : 1



TOPOGRAPHIC

- Administrative Boundaries
- Township
- Concession, Lot
- Provincial Park
- Indian Reserve
- Cul. Pk. & Pile
- Contour
- Mine Shafts
- Mine Headframe
- Railway
- Road
- Trail
- Natural Gas Pipeline
- Utilities
- Tower

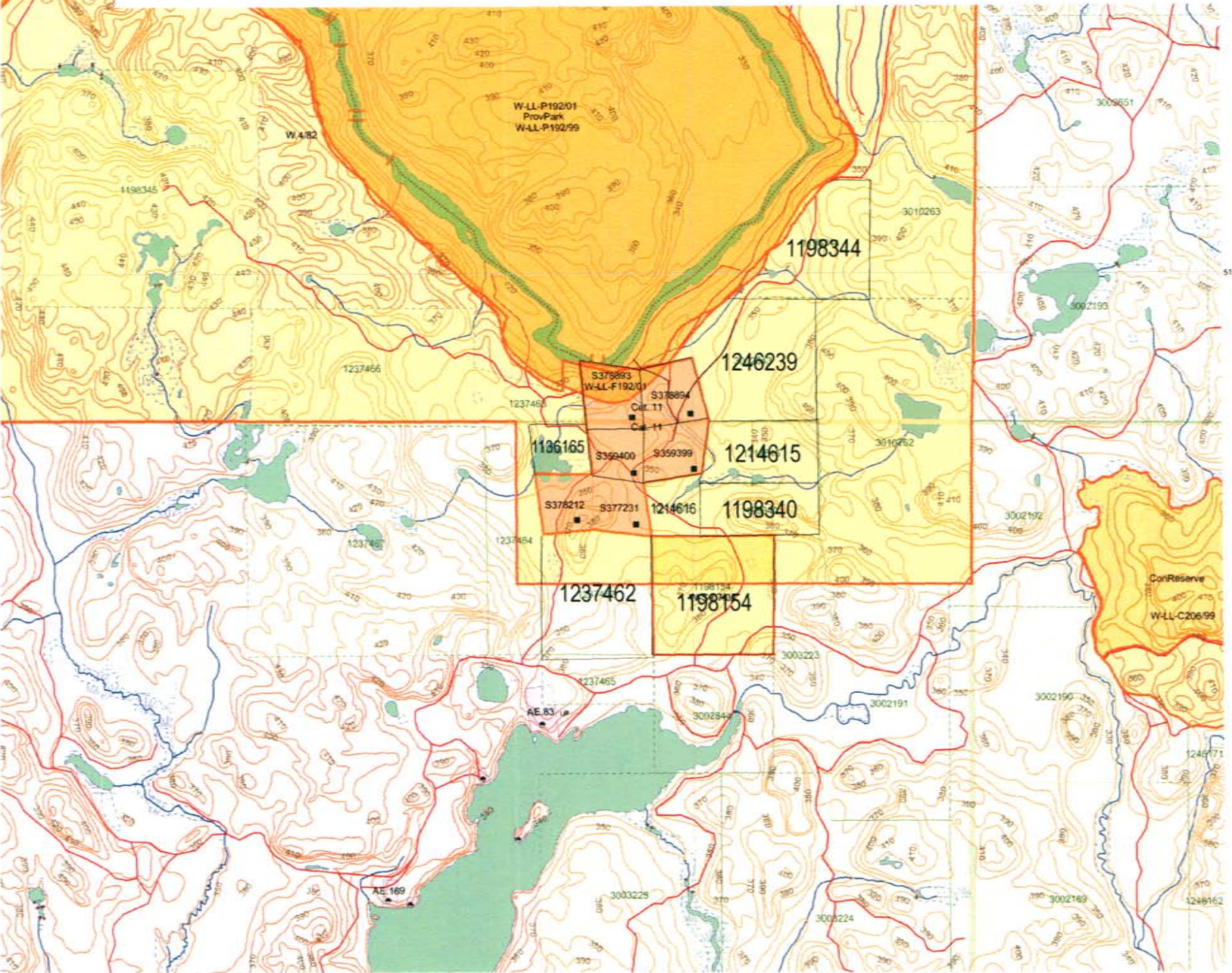


LAND TENURE WITHDRAWAL DESCRIP

Identifier	Type	Date	Description
Cat. 11	Wsm	May 16, 2001	Aggregate Pt
ConReserve	Wsm	Dec 21, 2000	Centre Creek
W-LL-C206/99	Wsm	May 12, 1999	SEC. 35 W-I
W-LL-F192/01	Wsm	Jul 21, 2001	SEC. 35 W-L1
W-S-07/01	Wsm	Feb 1, 2001	Sec. 35 W-S
ProvPark	Wsm	Oct 20, 2001	Spanish River
W-LL-P192/01	Wsm	Jul 20, 2001	SEC 35 W-LL
W-LL-P192/99	Wsm	May 17, 1999	SEC 35 W-LL
W.4/82	Ws	Jul 14, 1982	SEC.38/80 W

Figure: 2

# Spanish River Carbonatite Property - Claim Map



Users' Office of the Ministry of Northern Development and Mines for additional information, survey, or land title determination purposes as the information

General Information and Limitations  
Contact Information:

Toll Free

Map Datum: NAD 83

This map may not show unregistered land tenure and interests in land including certain patents, leases, easements, right of ways.

The Spanish River Carbonatite Complex is enveloped in a halo of fenitized granitic rocks. Carbonatite rocks with a high silicate mineral content occur along the periphery of the body. Lower silicate carbonatite occurs toward the core. The contact between fenitized wall rock and carbonatite appears to be over a maximum thickness of 300 metres. This observation is based on the trenching program and the Union Carbide drill hole. This area is referred to as the "Transition Zone" and is a banded and brecciated assemblage of layered biotite sovite, fenite and mafic rocks. The transition zone appears to be a result of contact metamorphism and metasomatism. Discreet lenses bands and veins of high purity sovite have been located in this zone. The sovites in this area appear to have higher quantities of magnetite, vermiculite and apatite. The second classification of the complex is referred to as the "Outer Core". This classification is used for the purpose of describing the trenching program and is adopted from a drill hole completed in 1968, by Union Carbide. The outer core is very similar to the transition zone with exception of a marked increase in sovite (calcite). The third and last classification of the complex is the "Inner Core", comprised almost entirely of sovite.

The main characteristic that distinguishes the Spanish River Carbonatite from other carbonatite complexes in northern Ontario is the very high content of sovite verses mafic rock components.

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### REGIONAL STRUCTURAL GEOLOGY

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The Spanish River Complex Carbonatite Complex lies within the Abitibi Subprovince of the Superior Province of the Canadian Shield. The complex occurs along a north-south striking fault zone along the west side of the Sudbury Basin. According to the 1987 O.G.S. Study 30 this fault system maybe a graben structure branching off the Ottawa-Bonnechere graben, a system hosting carbonatite-alkalic rock complexes in the Nipissing area.

Airphotos of the region also suggest the complex occurs at the point of intersection of a number of regional lineaments.

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### SPANISH RIVER COMPLEX STRUCTURE

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Shearing and brecciation of the enveloping quartz monzonite is common. Fractures are commonly filled with mafic pyroxenes, amphiboles and calcite. There is evidence in the trenching and the Union Carbide drill hole that blocks of fenite have peeled of the walls and are incorporated into the complex. Banding of fenites and sovite is common.

Post faulting has not been encountered at this time. The heterogeneous mixture and lack of outcrop makes it very difficult at this time to suggest that post faulting has occurred.

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### FENITIZED QUARTZ MONZONITE

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The host rock enclosing the Spanish River Complex is massive, medium grained pink quartz monzonite. In contact with the complex the quartz monzonite has been fenitized. The granitic rock



becomes mottled pink and green-blue in colour. Sodic amphibole and pyroxene have replaced the quartz in the quartz monzonite.

The fenitized quartz monzonite is brecciated and intruded by dark green mafic veins. Carbonate is commonly associated with the veins and fracture fills. The closer to the intrusive the greater the number of mafic and calcite filled fractures and veins.

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#### SPANISH RIVER CARBONATITE COMPLEX - TRANSITION ZONE

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The transition zone is predominantly fenite, but exhibits less brecciation and more banding. There is a marked increase of sovite veins, lenses and bands. The purity of the sovite in this zone varies from 45% CaCO<sub>3</sub> to nearly pure. The variations and types of accessory mineral found in the sovite is as follows:

- Vermiculite – 0 to 15%
- Biotite – 0 to 15%
- Magnetite – 0 to 5%
- Pyrrhotite – 0 to 5%
- Apatite – 0 to 5%

Numerous lenses and veins of clean calcite (sovite) have been located through the trenching program, which occur in what previously would have been described as the transition zone. It is from one of these lenses that the 1996 bulk sample was taken.

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#### SPANISH RIVER CARBONATITE COMPLEX - OUTER CORE

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The actual contact between the transition zone and outer core is not well defined and is based on the degree of sovite versus fenite present and overburden thickness. Where there is a sharp increase in overburden is the logical location for the contact between the complex and altered host rock. The approximate thickness of the outer core based on the above observations would be 200 metres. The outer core appears only to outcrop along the road where Vein No.3 is located. A vertical rotary percussion hole (IP-2) drilled, in 1975, in this vicinity encountered 15 feet of overburden. This is also in the vicinity of test pits, which exposed decomposed sovite very similar to TP-2.

In the O.G.S. Study, "*Spanish River Carbonatite Complex*" the outer core is described as the Outer Phase. The outer phase based on this report is comprised of syenite, pyroxenite, ijolite and biotite sovite.

For the purpose of this report the description of the composition for the outer core is from the Union Carbide drill hole.

*“The Outer Core of the carbonatite-filled diatreme, composed of biotite amphibole sovite with some phyrrotite and minor chalcopyrite and gramphite. There is no appreciable magnetite between 1066’4” and 1339’. Between 1339’ and 1495’ coarse magnetite is present in both sovite and the gramphite. For the purpose of logging this core, 3 rock types are recognized, gramphite, sovite inclusions, which may be either sovite with a high proportion of inclusions, or gramphite, which has been carbonated. In either case, the dark minerals constitute up to 50% of the rock. The proportions of sovite, inclusions and gramphite in this section are: 22%, 32% and 46% respectively.”*

All previous trenching, geological mapping, bulk sampling has been located in the outer core. Outcrop exposure was poor. Trenching has located sovite mineralization in four separate areas. Prospecting and geological mapping has located sovite bedrock in two localities.

The 1996 trenching program was carried out almost entirely over this zone covering 800 metres of strike length along the western contact of the complex. The approximate thickness of the transition zone – outer core is approximately 300 metres.

The trenching program located several areas of economic interest. For the purpose of describing these areas they will be described as follows:

- Zone No. 1 – area where the 100 tonne bulk sample was taken and the best continuous high grade CaCO<sub>3</sub> has been located to date.
- Zone No. 2 – area that had been stripped for a potential bulk sample in 1996, contained a blend of calcite, apatite, biotite, vermiculite with minor silicocarbonatite and pyroxenitic rocks. In 2000 a 1000 tonne bulk sample was taken. In 2001 the area is the Burns Mine current quarry location.
- Zone No. 3 – area that was originally sampled in 1993 and contained mineral composition similar to Zone No.2. The main difference is a marked increase in biotite and vermiculite content. This area contains large reserves of residuum.
- Zone No. 4 – area of fracture filled sovite and pyroxenite veins within well fenitized quartz monzonite. Large sovite reserves anticipated under fine stratified sand along borders of this zone.
- Road Zone – area of high purity calcite banded with magnetite, pyroxene rich sovite.
- Residual Vermiculite – this area measures 82m x 32m and is comprised of at least 50% fine vermiculite.

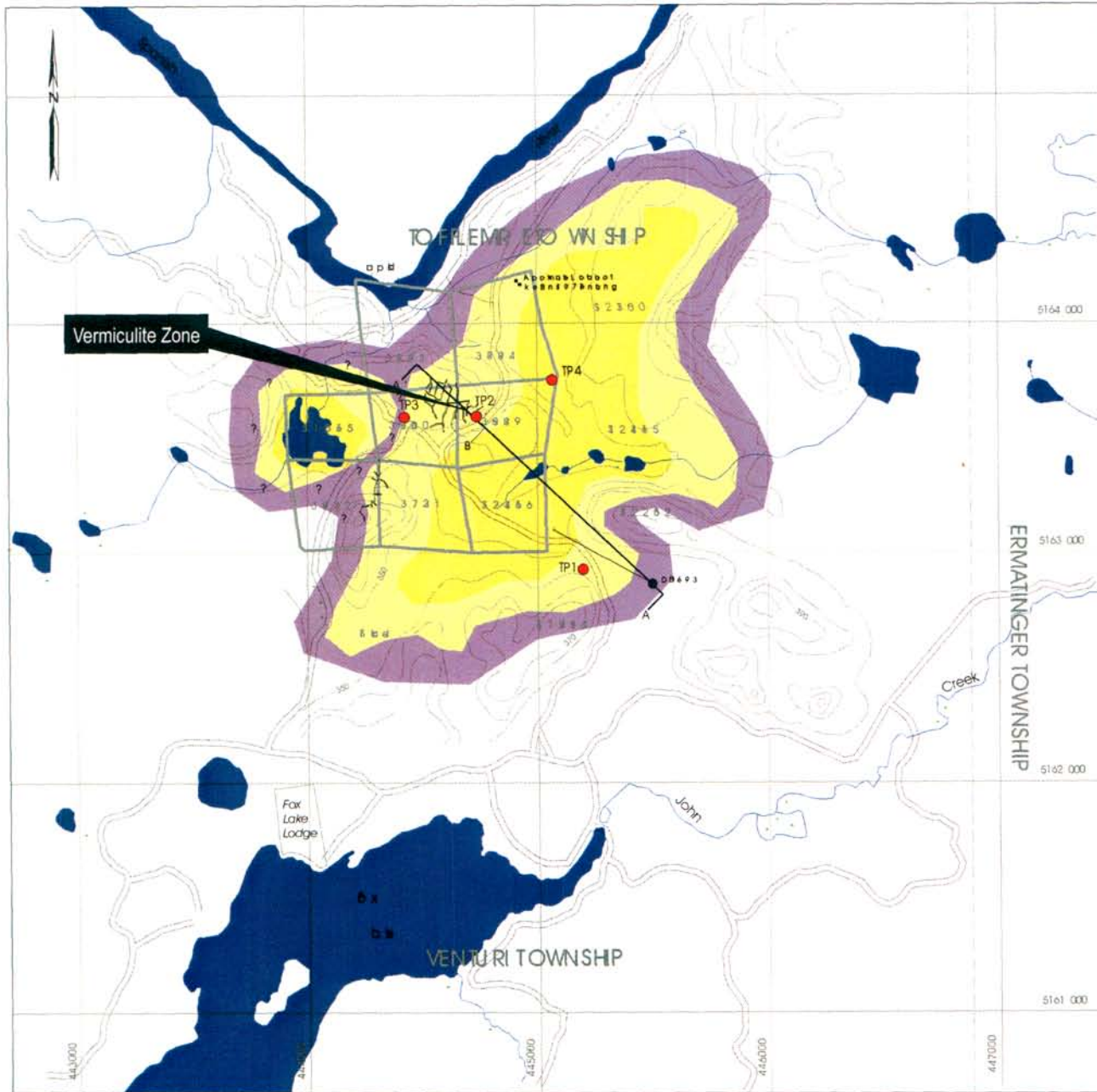
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#### SPANISH RIVER COMPLEX – INNER CORE

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The inner core of the Spanish River Complex is entirely covered by a thick layer, +100 feet, of overburden. Descriptions provided from various sources all relate back Union Carbide diamond drill hole. All descriptions use calcite content to describe and classify the inner core. Concentrations of calcite (sovite) increase closer to the centre of the complex.

For the purpose of this report Union Carbide’s description (refer to Appendix 8) was used to describe the inner core. Union Carbide describes the inner core being comprised almost entirely of



**LEGEND**

- Carbonatite Complex - Inner Core  
Clean sovite - white massive, fine to coarse grain, greater than 50% CaCO<sub>3</sub>.  
Minor iron oxides, .5% to 12% P<sub>2</sub>O<sub>5</sub>,  
minor to abundant biotite & vermiculite.
- Carbonatite Complex - Outer Core  
Biotite Sovite - white to grey with black banding, moderate to abundant biotite & vermiculite, 5% iron oxide, 2% to 5% P<sub>2</sub>O<sub>5</sub>. Often interbanded with biotite pyroxene.
- Alteration Zone - Transition Zone  
Fenite - altered quartz monzonite interbanded with iron stained sovite.

**SYMBOLS**

- Road
- Trail
- Trench
- Diamond Drill Hole
- Reverse Circulation Drill Hole
- Claim Number
- Claim Boundary
- Township Boundary

Venturi Tp. - Tofflemire Tp.  
**Property Geology Map**

Agricultural Mineral Prospectors Inc.



Figure: 3

biotite/magnetite sovite, with minor sections of gramphite. Accessory minerals found were pyrrhotite, chalcopyrite and apatite.

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## LITHOLOGIC UNITS FOR THE SPANISH RIVER CARBONATITE

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### CENOZOIC

#### PLEISTOCENE AND RECENT

River deposits, stream and swamp deposits, Glacial Deposits – sand and gravel

*Unconformity*

### PROTEROZOIC

#### SPANISH RIVER CARBONATITE COMPLEX

Inner Core

Outer Core

Fracture fillings

### ARCHEAN

Fenitized and brecciated quartz monzonite

Quartz monzonite

*(Adapted from Table: 1 pg 10, OGS Study 30, Spanish River Carbonatite Complex, Ron Sage, 1987)*

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## BIOTITE TEST PIT PROGRAM – PROSPECTING REPORT

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Between the dates March 9<sup>th</sup> and March 10<sup>th</sup> 2006 Agricultural Mineral Prospectors Inc. dug a test pit to evaluate mineral composition under the vermiculite zone. The purpose of this activity was to find potassium rich biotite. The program was unsuccessful in penetrating the vermiculite residuum to locate biotite. The pit was dug to a total depth of 6 metres and covered an area of 10 x 10 metres.

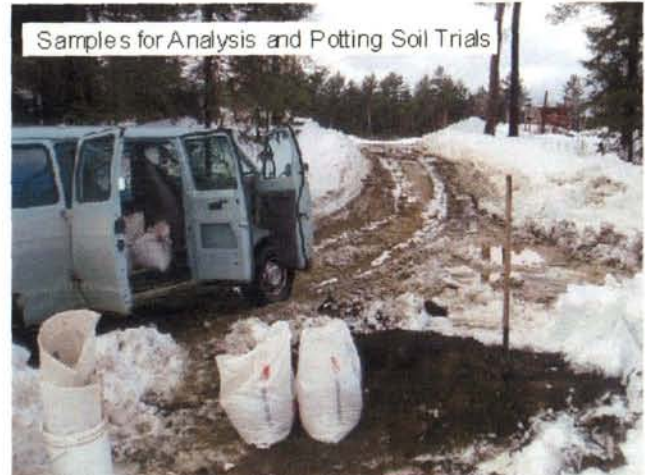
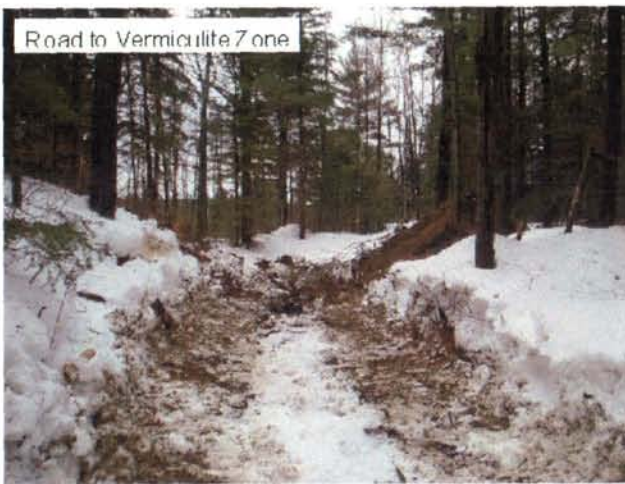
The Spanish River Carbonatite is an exceptional source of both biotite and vermiculite (15% combined). Though not widely recognized in agriculture today, ongoing research will demonstrate that biotite is a far more effective potassium source then soluble potassium fertilizer. As well as an excellent source of potassium biotite contributes to the development of high-activity clays within the soil.

All clays are classified as secondary or sedimentary in origin. There is only one group of primary rock forming minerals that are classified as clay; they are micas. The most important agromineral mica is

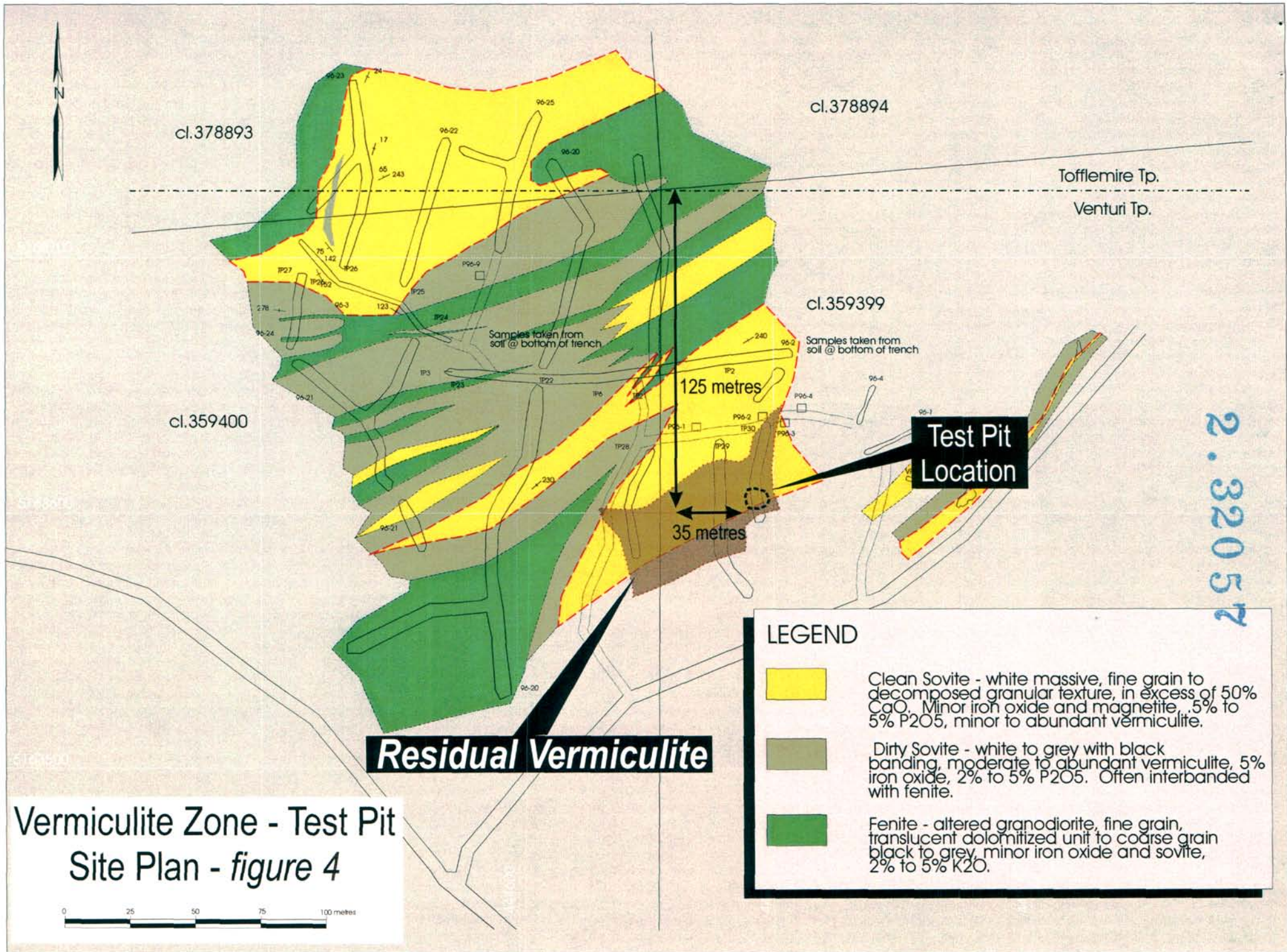


biotite. Biotite is a charged potassium, (~ 12%  $K_2O$ ), phyllosilicate that carries its unique structure through various transformations to become the most reactive clay colloid in our soils, (~ CEC 180 meq/100g). As the potassium is released the exchange capacity is increased and is characteristic of the clay mineral illite. With complete removal of K interlayer planes vermiculite and montmorillonite clay minerals are produced, (Hinsinger, P., Elsass, F. Jaillard, B. & Robert, M. (1993) *J. Soil Sci.* 44, 525). Vermiculites are classified as high activity clays. This means that this group of clays has a wide range of mineralogy resulting in a wide range of compositions where the interlayer spaces are charged and hydrated to various extents resulting in a wide diversity in behavior, (Pedro 1997). The transformation of biotite to vermiculite within the soil system is rapid. Experiments conducted by Mortland (1956), Spyridakis et al. (1967) and Weed et al. (1969) documented biotite functioned as well as soluble salt (KCl) as a source of K. Possibly more significant than the bioavailability of potassium the formation of vermiculite contributes an essential clay mineral to the soil system.

Further deep trenching is recommended in this area. If massive biotite deposits are located detailed analysis and field trials should commence.







**Residual Vermiculite**

**Test Pit Location**

**LEGEND**

- Clean Sovite - white massive, fine grain to decomposed granular texture, in excess of 50% CaO. Minor iron oxide and magnetite, .5% to 5% P<sub>2</sub>O<sub>5</sub>, minor to abundant vermiculite.
- Dirty Sovite - white to grey with black banding, moderate to abundant vermiculite, 5% iron oxide, 2% to 5% P<sub>2</sub>O<sub>5</sub>. Often interbanded with fenite.
- Fenite - altered granodiorite, fine grain, translucent dolomitized unit to coarse grain black to grey, minor iron oxide and sovite, 2% to 5% K<sub>2</sub>O.

Vermiculite Zone - Test Pit Site Plan - figure 4



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## REFERENCES

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Sage R.P., (1987) *Spanish River Carbonatite Complex, Study 30*, Ontario Geological Survey, Ministry of Northern Development and Mines.

Heinrich, E. Wm., (1966) *The Geology of Carbonatites*, Rand McNally & Co.

Proudfoot David, (1971) *Petrology of the Carbonatite Complex in Township 107-108*, Carleton University

Barnett P.J. and Bajc A.F., (2000) *Chapter 3 Quaternary Geology, The physical Environment of the City of Greater Sudbury*, Ontario Geological Survey, Special Volume 6

Erdosh George, (1975) *Exploration Work on Township 107 Carbonatite Complex*, International Minerals & Chemical Corp.