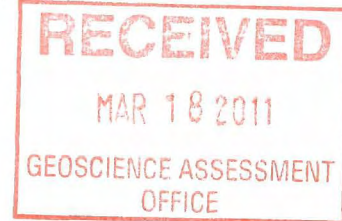


**Technical Report**  
Submitted to the  
**Ministry of Northern Development, Mines and Forests**  
**Assessment Section**



**Queensborough Complex Project**

**Regional Scale**  
**Soil Geochemistry & Lithochemical Survey**  
Including  
**Whole Rock Analysis of Select**  
**Gabbros & Ultramafics**

March 10, 2011

**2.47916**

Report Prepared by Marc Thomas Forget for  
Diane Milligan  
March 2011

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# Queensborough Complex Project Summary

The Queensborough Complex is part of a dismembered ophiolite that is discontinuously exposed along the outer margins of the Elzevir Tonalite of the Grenville Province of Southern Ontario. The rock exposures include ultramafic horizons that have been variously altered to talcose schists, anthophyllite and magnesite assemblages depending upon PT conditions and CO<sub>2</sub> fugacity. Past evidence of high chrome-nickel concentrations in the ultramafic rocks and overlying till suggests that PGE elements may have been partitioned and concentrated into favorable cumulate sequences. Furthermore, a listwanite assemblage was identified in drill core from the northeast portion of the property and suggests that Au may also have been deposited within a hydrothermal vein. The preceding forms the basis and rationale for the Au-PGE survey.

The project consisted of a humus soil geochemical and a bedrock litho-geochemical survey conducted from October 25 to November 3, 2010 over three mining claims. SGS Laboratories in Toronto analyzed soil and rock samples for gold, platinum and palladium. In addition, twenty samples from metre wide ultramafic cumulate sequences were analyzed for major oxides and chromium.

## **Results**

1) Data for 130 rock samples show that almost all rocks have sub-detection limit Au, Pt and Pd concentrations. A few rocks had slightly elevated concentrations, but not anomalous. Four out of 32 soil samples show a consistent trend of elevated signals (19 to 37 ppb) along an east-west hydrologic lineament just north of the property. When this data is compared with data Hattori & Cameron (2004) obtained from a similar survey in the Lac Des Iles area (30 to 70 ppb), it is indicative of PGE enriched source rocks and warrants further investigation.

2) A talcose rock with excellent carving characteristics and potential industrial applications has been discovered in the north section of an exploratory soapstone quarry (at the bulk sampling stage). This rock (Sample B153) is low in silica, enriched in both alumina and magnesia and devoid of alkali and earth alkali oxides including calcium. The high chromium content and stratigraphic position of this rock within an ultramafic cumulate sequence most certainly constrains the protolith to an ultramafic, but the major oxide configuration defies known ultramafic protoliths.

3) A talcose rich rock (Sample A112) was sampled in the northwest corner of the survey area.

## **Conclusions and Recommendations**

- 1) The northwest property boundary overlies ultramafic rock with high talc carbonate content and this area should be prospected in detail for talc and soapstone potential,
- 2) The northeast corner of the property overlies a southeastern striking listwanite and east west striking hydrologic catchment with elevated values of gold, platinum and palladium in the wetland sediments. It is recommended that a medium density soil and rock geochemical survey be conducted in this area to constrain the provenance of the Au + PGE signals. Re-drilling DDH#2 (see Appendix B) should be considered because the pyrite rich core from this hole cannot be located for assay analysis of Au and PGE.
- 3) Additional rock in the northern boundary of the soapstone quarry (Sample B153) with excellent carving stone characteristics (i.e. zero carbonate, zero mica and hardness of 2.5) has been identified. This rock is on strike with a northeast trending talc carbonate schist (soapstone) lineament. It is recommended that stripping, trenching and limited shallow test drilling or pits be conducted along this lineament to properly delineate the surface extent, depth and quality of the soapstone.

# Property Information

## Project Location & Directions to Property

### Location:

Queensborough Complex Property is 11 km North of Tweed, Ontario  
Elzevir Township, Ontario, Canada  
Southeastern Ontario District  
Southern Ontario Mining Division  
Claim Map Sheet (see map# 2)  
UTM 316900E 4937800N, NAD 83, Zone 18  
NTS 31C/11

### Directions:

The property is located approximately 12 kilometres north of Tweed, Ontario. It is accessible by very good paved roads (see Road Map #1.) Starting at Tweed, Ontario (Hwy 37), and travel north on Hwy 37 for 8.5 km to Hwy 7. Turn right going east onto Hwy 7, continue 1 km to the Flinton Road. Turn north onto the Flinton road. Continue north for 2 km and that places you in the centre of the survey area.

### Property Identification:

The three staked mining claims are a contiguous block of one 40 hectare and two 20 hectare patented parcels of land comprising Lot 5, Concession 6 of Elzevir Township, Ontario. (See Mining Lands Claim Map #2). Claims 3006585 and 3006598 are held jointly and equally by Diane Milligan, prospector licence number 1003980 and Clare Myles, prospector licence number 1004208. Diane Milligan holds Claim 1077481 by 100%. Permission to bulk sample Claim 1077481 has been extended for one more year. The Claims are in good standing.

### Mining Lands Claim List:

Tag Number	Lot	Concession	Parcel	Township	Plan
3006585	5	6	N 1/2	Elzevir	G-1261
3006598	5	6	SE 1/4	Elzevir	G-1261
1077481	5	6	SW 1/4	Elzevir	G-1261

### Names & Addresses of Claim Holders:

Diane Louise Milligan  
#3-130 Marlbank Road  
Box 9 Tweed, Ontario  
K0K 3J0

Clare Neil Myles  
72 Carrs Road  
Tweed, Ontario  
K0K 3J0

## Mining Claim Abstracts

### Mining Claim Abstract: Claim 3006598

Mining Claim Abstract

| [Main Menu](#) | [Back](#) |

SOUTHERN ONTARIO - Division 90		Claim No: SO 3006598		Status: ACTIVE	
<b>Due Date:</b>	2011-Oct-16	<b>Recorded:</b>	2007-Oct-16		
<b>Work Required:</b>	\$ 400	<b>Staked:</b>	2007-Oct-09 16:30		
<b>Total Work:</b>	\$ 800	<b>Township/Area:</b>	ELZEVIR (G-1261)		
<b>Total Reserve:</b>	<u>\$ 0</u>	<b>Lot Description:</b>	SE1/4 Lot 5, Con 6		
<b>Present Work Assignment:</b>	\$ 0	<b>Claim Units:</b>	1		
<b>Claim Bank:</b>	\$ 0				

### Claim Holders

Recorded Holder(s) Percentage	Client Number
MILLIGAN, DIANE LOUISE ( 50.00 %)	402982
MYLES, CLARE NEIL ( 50.00 %)	403986

### Transaction Listing

Type	Date	Applied	Description	Performed Number
STAKER	2007-Oct-16		RECORDED BY MILLIGAN, DIANE LOUISE (1003980)	R0790.05141
STAKER	2007-Oct-16		MILLIGAN, DIANE LOUISE (402982) RECORDS 50.00 % IN THE NAME OF MYLES, CLARE NEIL (403986)	R0790.05142
WORK	2009-Mar-13	\$ 400	WORK APPLIED (PMECH) APPROVED: 2009-MAY-27	<u>W0990.00772</u>
WORK	2010-Sep-17	\$ 0	CERTIFICATE CONFIRMING NOTICE OF INTENTION TO PERFORM ASSESSMENT WORK	<u>W1090.02223</u>
WORK	2010-Oct-12	\$ 400	WORK APPLIED (PMECH) APPROVED: 2010-NOV-18	<u>W1090.02336</u>

**Mining Claim Abstract: Claim 3006585**

Mining Claim Abstract

| [Main Menu](#) | [Back](#) |

SOUTHERN ONTARIO - Division 90		Claim No: SO 3006585		Status: ACTIVE	
<b>Due Date:</b>	2011-Mar-23	<b>Recorded:</b>	2007-Mar-23		
<b>Work Required:</b>	\$ 800	<b>Staked:</b>	2007-Mar-12 14:00		
<b>Total Work:</b>	\$ 1,600	<b>Township/Area:</b>	ELZEVIR (G-1261)		
<b>Total Reserve:</b>	\$ 0	<b>Lot Description:</b>	N 1/2 lot 5, con 6		
<b>Present Work Assignment:</b>	\$ 0	<b>Claim Units:</b>	2		
<b>Claim Bank:</b>	\$ 0				

**Claim Holders**

Recorded Holder(s) Percentage	Client Number
MILLIGAN, DIANE LOUISE ( 50.00 %)	402982
MYLES, CLARE NEIL ( 50.00 %)	403986

**Transaction Listing**

Type	Date	Applied	Description	Performed Number
STAKER	2007-Mar-23		RECORDED BY MILLIGAN, DIANE LOUISE (1003980)	R0790.02431
STAKER	2007-Mar-23		MILLIGAN, DIANE LOUISE (402982) RECORDS 50.00 % IN THE NAME OF MYLES, CLARE NEIL (403986)	R0790.02432
WORK	2009-Mar-13	\$ 800	WORK APPLIED (PMECH) APPROVED: 2009-MAY-27	W0990.00772
WORK	2010-Feb-05	\$ 353	WORK APPLIED	W1090.00474
WORK	2010-Feb-05	\$ 447	WORK APPLIED	W1090.00478
WORK	2010-Sep-17	\$ 0	CERTIFICATE CONFIRMING NOTICE OF INTENTION TO PERFORM ASSESSMENT WORK	W1090.02223

## Mining Claim Abstract: Claim 1077481

Mining Claim Abstract

| [Main Menu](#) | [Back](#) |

SOUTHERN ONTARIO - Division 90		Claim No: SO 1077481		Status: ACTIVE	
<b>Due Date:</b>	2011-Dec-28	<b>Recorded:</b>	2005-Dec-28		
<b>Work Required:</b>	\$ 400	<b>Staked:</b>	2005-Dec-22 16:00		
<b>Total Work:</b>	\$ 1,600	<b>Township/Area:</b>	ELZEVIR (G-1261)		
<b>Total Reserve:</b>	\$ 809	<b>Lot Description:</b>	SW1/4 LOT 5, CON 6		
<b>Present Work Assignment:</b>	\$ 3,200	<b>Claim Units:</b>	1		
<b>Claim Bank:</b>	\$ 0				

### Claim Holders

Recorded Holder(s) Percentage	Client Number
MILLIGAN, DIANE LOUISE ( 100.00 %)	402982

### Transaction Listing

Type	Date	Applied	Description	Performed Number
STAKER	2005-Dec-28		RECORDED BY DESPRES, JOHN-PAUL (1001763)	R0590.05341
WORK	2006-Mar-16	\$ 0	CERTIFICATE CONFIRMING NOTICE OF INTENTION TO PERFORM ASSESSMENT WORK	W0690.00529
TRAN	2007-Mar-23		DESPRES, JOHN-PAUL (299691) TRANSFERS 50.00 % TO MILLIGAN, DIANE LOUISE (402982)	T0790.00077
OTHER	2007-Dec-27		WORK PERFORMED (PMAN, PMECH) APPROVED: 2008-MAR-26	\$ 1,553 Q0790.02324
WORK	2007-Dec-27	\$ 800	WORK APPLIED (PMAN, PMECH) APPROVED: 2008-MAR-26	W0790.02324
MISC	2008-Apr-23		PERMISSION TO BULK SAMPLE	M0890.00092
MISC	2008-Sep-15		PERMISSION TO BULK SAMPLE	M0890.00252
WORK	2008-Dec-05	\$ 400	WORK APPLIED	W0890.02556
OTHER	2009-Mar-13		WORK PERFORMED (PMECH) APPROVED: 2009- MAY-27	\$ 5,656 Q0990.00772
TRAN	2010-Jul-16		DESPRES, JOHN-PAUL (299691) TRANSFERS 50.00 % TO MILLIGAN, DIANE LOUISE (402982)	T1090.00297
OTHER	2010-Oct-12		WORK PERFORMED (PMECH) APPROVED: 2010- NOV-18	\$ 1,600 Q1090.02336
WORK	2010-Oct-12	\$ 400	WORK APPLIED (PMECH) APPROVED: 2010- NOV-18	W1090.02336

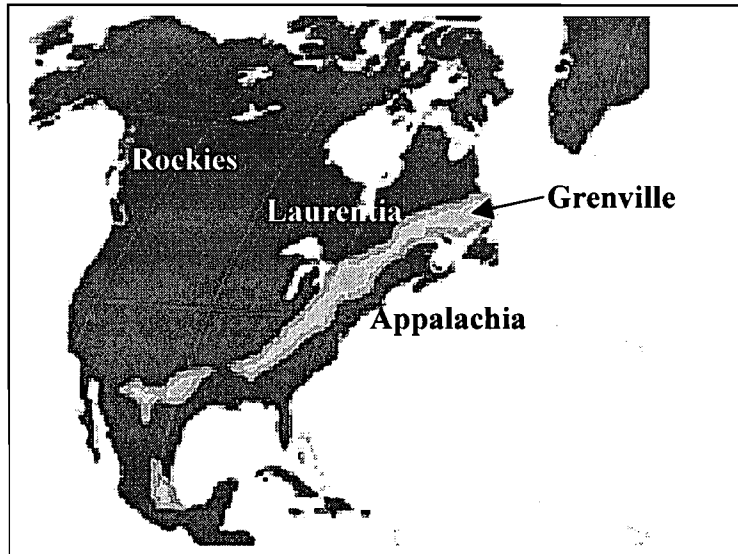
# Geology

## Regional Geology

The property is located within the Elzevir Terrane of the Complex Arc Belt (CAB) of the Southern Grenville Province. Geoscientists continue to unravel the tectonic history of the very complex Grenville Province in Ontario and related rock associations. Polycyclic orogenies have imbricated and accreted many packages of co-genetic and allochthonous rocks onto the Laurentia margin. The spatial and temporal relationships of some lithologies are currently not well understood or in some cases misunderstood. It is vital to understand the spatial and temporal characteristics of rock formations and metallogenesis in the context of plate tectonics and igneous petrogenetic models.

## Tectonic History of the Grenville Province

The rocks associated with the Grenville Province are distinct in range of age and continental orientation. They correspond to neo and mesoproterozoic linear associations of allochthonous continental and island arcs. The rocks have been imbricated and accreted onto the Laurentia margin. Many related thrust sutures demarcate Terranes and Domains within the Grenville. The Grenville rocks extend from Labrador to Texas as shown in Figure #1. In Ontario and New England, they abut Laurentia in the northwest and the Appalachians abut the Grenville Province in the southeast respectively. Laurentia is an Archean cratonic assembly of micro-continents that has survived several Supercontinent Cycles and many Wilson Cycles. Many Archean rocks are also part of fossil arcs. Appalachia is an orogenic arc formed during the Paleozoic Taconic Orogeny of 450 Ma. Tectonophysicists are interested in the implications of the dominant north-south orientation of most modern and paleo-arcs such as the Grenville, Rockies, Andes and the Appalachians.



**Figure #1: Grenville Province**

It is certain that multiple orogenic cycles are responsible for the imbrication of allochthonous “arc related rock packages” onto the margin of Laurentia. A few are the Elzevir and Grenville orogenies. Orogenic cycles have a typical average frequency of about 200 million years. This is based in part because the oldest known ocean floor rocks are 170 Ma. The rocks in the study area have geochronologies ranging from 1050 Ma for the Kensington-Skootamata Suite of syenitic plutons emplaced during the Ottawa Orogeny to 1250 Ma for the Elzevir Suite of intermediate plutons emplaced during the Elzevirian Orogeny.



Though the rock "packages" are adjacent to one another today, they are allochthonous and their igneous petrogenetic histories are separate, distinct and several hundred millions of years apart. The problem related to timing of the Grenville Orogeny is an area of some contention today. Currently, the classical Grenville designation is thought to cover two separate orogenic cycles; the Rigolet, Ottawa and Shawingian orogenies that compose the Grenville Cycle, and the Elzevirian Orogeny that now stands on its own. Due to the great size of the area affected by Grenville events, there is some variance in timing across the orogenic belt. There is evidence of over thrusting of CAB rocks north of Parry Sounds which complicates the tectonic history in the Central Gneiss Belt north of the CAB. A metamorphic lid centered near the property, the nature of which is not fully understood, is responsible for low to mid-greenschist facies regional metamorphism within an outer ring of much higher regional metamorphism.

### **Lithological Terranes**

The property is located within an assembly of rocks traditionally called the Central Metasedimentary Belt (CMB) because of the vast surface area of chemically derived marbles and epiclastic sediments derived from eroded volcanic flows, ash falls and eroded mafic to felsic intrusions. This term was applied when it was believed that the relative positions of continents, and rock formations within, had remained constant essentially for the entire history of the earth. The CMB is actually a name that describes an erosional regime and not an orogenic regime. Orogenic regimes are the direct result of plate tectonics. Isotope geochronology, plate tectonics and igneous petrogenetic geochemistry has revolutionized the understanding of the spatial and temporal history of rock formations. Furthermore, identifying protoliths and petrogenetic associations from trace element geochemical "fingerprint" analysis is inexpensive and readily available.

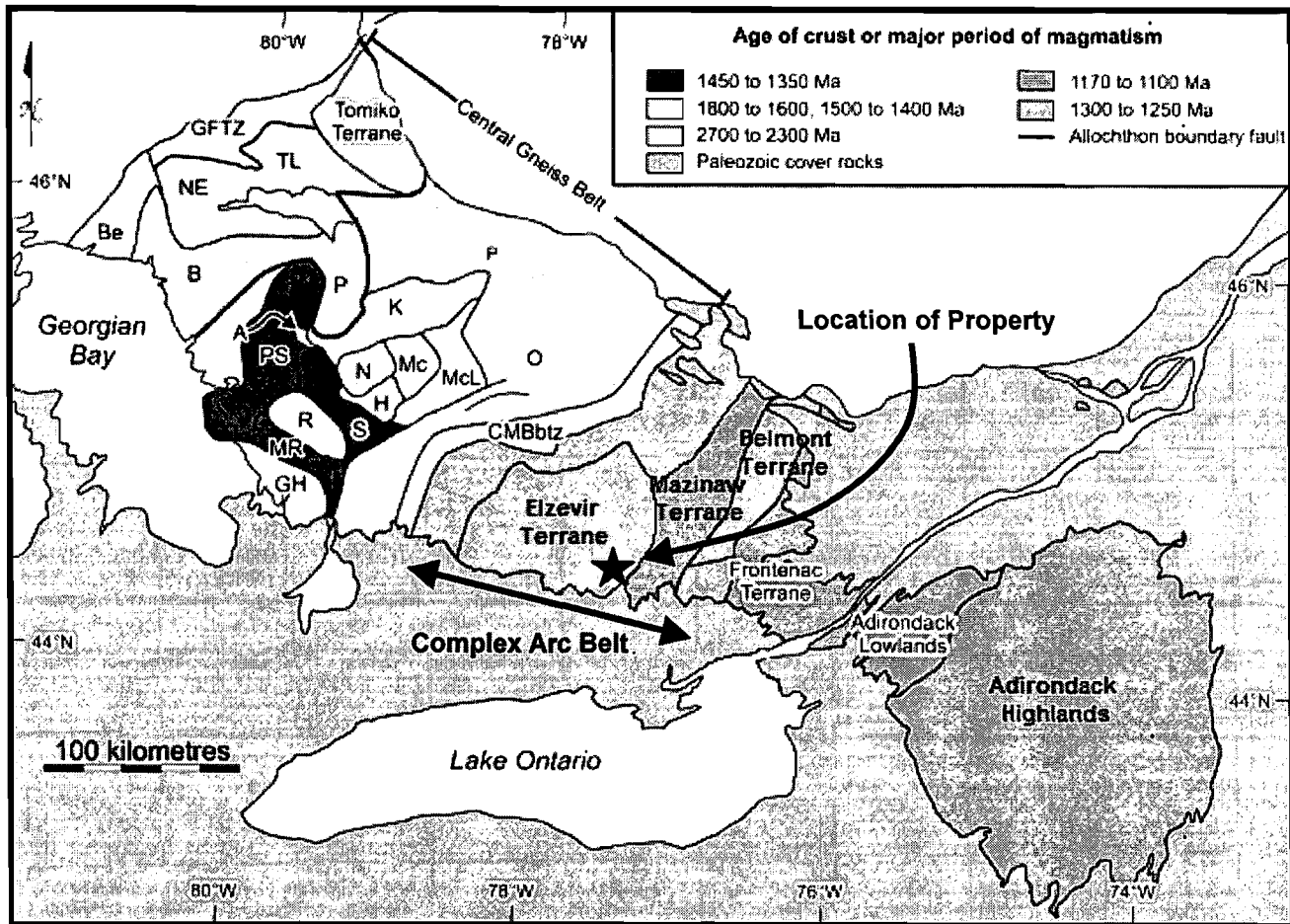
The Ontario Geological Survey mapping division is trying to keep pace with the speed at which new concepts in igneous petrology and tectonophysics are developing. Recent field studies in the CMB have revealed an orogenic association of rocks based on tectonics, co-genetic magmatic factors and major structures. Within the CMB is a complex spatial association of primitive arc, fore arc, back arc and island arc igneous rocks and their erosional derivatives. The arc complex is called the Complex Arc Belt (CAB) as shown in Figure # 2.

Within the Complex Arc Belt are several Terranes. The Terranes are believed to be allochthonous packages of co-genetically related rocks that have been imbricated onto one another in a geochronological sequence that is currently being deciphered by geoscientists. The property is located in the southeastern portion of the Elzevir Terrane of the Complex Arc Belt.

### **Back Arc Magmatism**

During the process of trying to delineate the various imbricated "packages" or Terranes of allochthonous rocks in the Grenville, geoscientists have been able to assign the Mazinaw Terrane to a fossil island arc and the Elzevir Terrane to an oceanic backarc rifting regime. Evidence of compressional tectonics in the Mazinaw Domain and extensional tectonics in the Elzevir Terrane terrain support this view. Whole rock modal and normative studies of rocks in these two Terranes also validate the claim. (Harnois & Moore, 1991). For example, the low-K tholeiitic Tudor Metavolcanics of the Elzevir Terrane have MORB like affinity: an extensional or rifting magma characteristic. The Kashawakamak Formation in the Mazinaw Terrane is a suite of calc-alkaline island arc volcanics with two known volcanic centres. (Moore & Morton, 1986).

There exists a very dramatic break, possibly an unconformity, between the Elzevir and Mazinaw Terranes. It is called the Ore Chimney Formation. This formation is considered to be a thin regolith between the two allochthonous Terranes and may be a major structural suture. Many gold occurrences lay along strike of this highly sheared formation. (Harnois & Moore, 1988).



**Figure 2: Complex Arc Belt of the Southern Ontario Grenville province.**

While lithologies such as plutons, volcanic flows and their epiclastic equivalents, and chemical sediments such as dolomites and marbles have been carefully mapped, one lithological feature, a curvilinear formation has been enigmatic for many decades.

A sliver of ultramafic rocks called the Queensborough Complex (LeBaron et al, 1987), Canniff Complex (Easton & Ford, 1994), Flinton Creek Complex (Ford & Skippen, 1997) and Relic Ocean Lithosphere (Brown et al, 1975) encircle the Elzevir and Weslemkoon tonalites of the Elzevir Terrane. Rather than using four names for the same formation, the writer proposes the name **Elzevir Ultramafic Complex** (See Figure # 3). The **Elzevir Ultramafic Complex** has a total probable length of 160 km and is exposed at the surface up to several kilometres wide and also pinches out in many places. The ultramafic rocks have been altered to serpentinites and talcose rocks including soapstone. Fibrous talc (actinolite-tremolite) has been explored and used for building materials. The applicant is currently extracting and testing soapstone within the survey area under a bulk sample permit. Soapstone is a "green" rock in that it has excellent refractory and thermal properties useful in passive heating applications.

The rock sequence has been carefully studied and identified as a section of a dismembered mesoproterozoic ophiolite by Smith & Harris (1996). This is consistent with backarc igneous petrogenesis. Unpublished modal and normative analysis of Queensborough ultramafic rocks by LeBaron et al (1986) also supports this perspective (See Appendix A for details). This rock formation is a singularly unique formation in the Province of Ontario. The writer knows of no other ophiolites in Ontario. The closest ophiolite is the Thedford Ophiolite in the eastern townships of the Province of Quebec and is being extensively explored for PGE potential. Other ophiolites in the Grenville are the Coal Creek Serpentinite, Llano Uplift, Texas (Garrison, 1981a,b) and possibly a series of ophiolites in western North Carolina.

The tectonic and lithological sequences in Texas are very similar to the relationship of the Central Gneiss Belt to the CAB. The North Carolina ophiolites (many dozens) are problematic because proterozoic and paleozoic ophiolites are juxtaposed along the Grenville-Appalachian front. The Webster-Addie Ultramafic Complex of N.C. is an analog to the Elzevir Ultramafic Complex. The Webster-Addie Complex (See Map #6) is intruded by an orogenic pluton with similar dimensions and major strain ellipsoid axis of the Elzevir Tonalite.

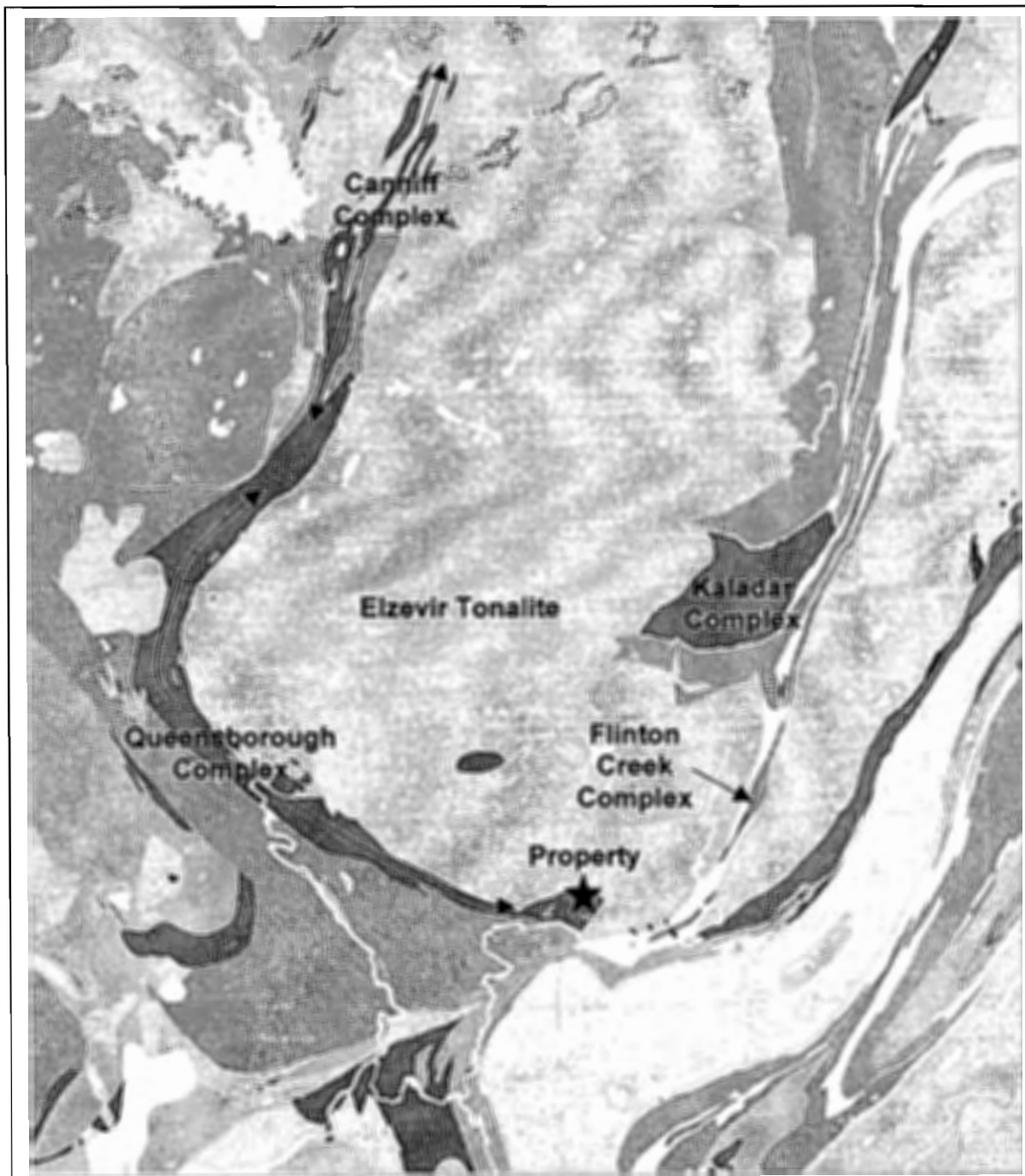


Figure 3: Elzevir Ultramafic Complex surrounding the Elzevir Tonalite

The most complete tectonic analysis including genesis and closure of the CAB backarc basin is a paper by Toby Rivers and David Corrigan (2000). Rivers & Corrigan compare the CAB rocks to to proterozoic rocks in Greenland, Norway and Sweden and suggests that the arc may have been 3000 km in total length with multiple backarc basins along strike. Ophiolites throughout the world are found in modern alpine settings and older eroded and peneplaned continental arcs. They have characteristic ultramafic stratigraphy and mineralogy that is identical to ocean floor rocks: primitive mantle magmas, cumulate ultramafics and gabbros, gabbros and low-K pillow basalts.

See Figure #4 for a ideal vertical sequence of an ophiolite. Radiolarites (a biogenic chert derived from radiolarians) is indicative of abyssal sedimentation because of the absence of carbonate solids below the Carbonate Compensation Depth. This is significant because the writer and the applicant have discovered an intact one metre multilayered vertical section of a radiolarite on top of altered serpentinities north of the property. Below the sediment layer, the thickness and completeness of the magma sequence can and does vary from ophiolite to ophiolite. Stratigraphically controlled dismemberment during tectonic uplift can also alter the sequence. Breccia related rocks are common along thrust sutures. The writer and the applicant have discovered gabbro quartz breccia consistent with thrust slilage and is parallel to the dip of the rocks. More on this in the recent exploration section.

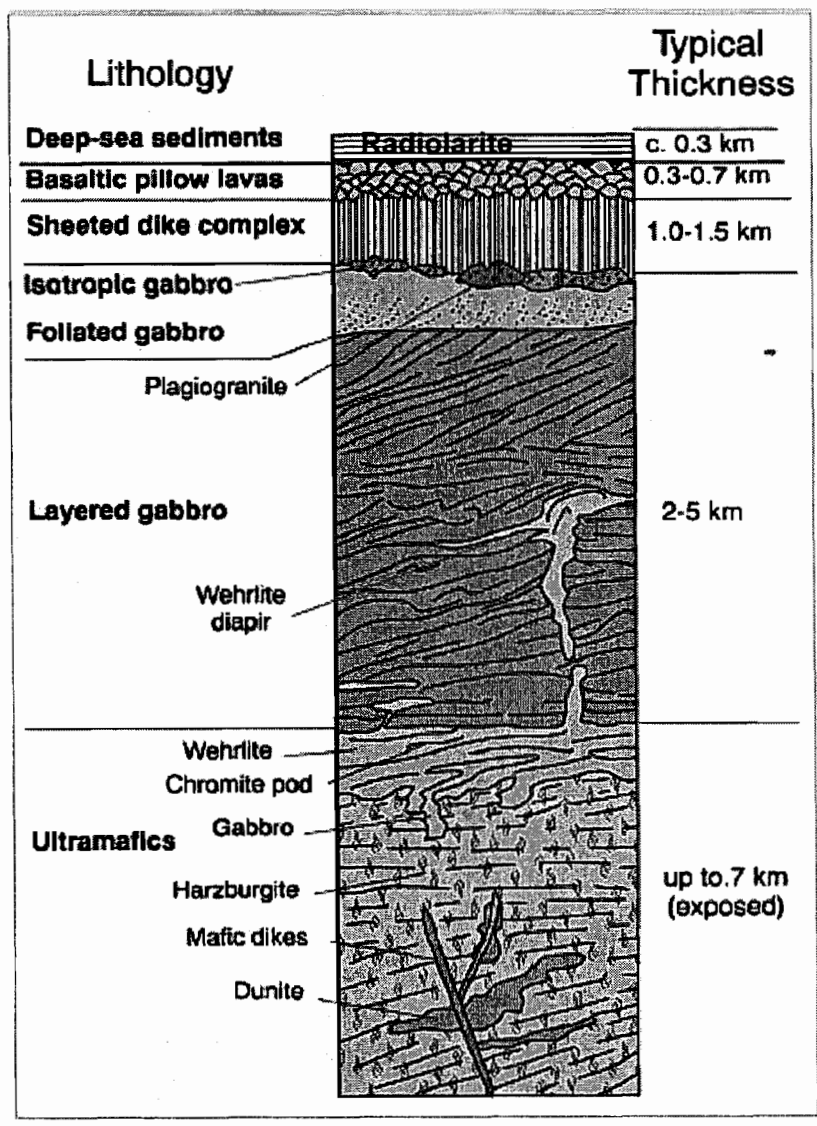


Figure 4: Vertical sequence of an idealized ophiolite

Furthermore, kinematic and chemical alteration, which all ophiolites have undergone, alters the mineralogy and texture of the ultramafic and mafic rock significantly. Mylonitization of highly sheared and carbonitized ophiolite rock can give them sedimentary or flow appearance. As such, many ophiolites continue to be mapped as clastic sediments or basalts. Smith & Harris (1996), state that the mylonitized gabbros of the Queensborough Complex have been mapped as basalts and therefore the gabbro sequence of the ophiolite has been underestimated and the flows overstated.

Ash (1991) states that geologists in British Columbia continue to incorrectly map the gabbro sequence of British Columbia ophiolites as intrusive mafic rocks. This situation currently exists in the map area of Map #5. Details are discussed in the following section.

### **Property Scale Geology**

Relief is about 30 metres. Geological Map #5 is based on OGS Map 1380 and field observations. Two modes of alteration have contributed to a geomorphology that consists of knobs and low flat areas: alteration of chromite bearing ultramafics yielding erosion proof magnetite and carbonatization of ultramafics which yielded soft talcose rocks. Differential erosion over time has left behind erosion proof two to ten metre high ultramafic knobs and larger unaltered gabbro edifices.

The property and survey area lies over cumulate ultramafics, cumulate gabbros and gabbros: remnants of a dismembered ophiolite. To the south are pillowed lavas. To the north and east are tonalites. The ultramafics rocks have been altered to serpentinites, talcose rocks and listwanites by hydrothermal activity at or near mid-greenschist facies. The ophiolite appears to have been tectonically transported and imbricated onto the margin of the emerging Grenville pile, at a low angle over top of a gabbro (most likely co-genetic with the Elzevir tonalite) and subsequently intruded by tonalites (Elzevir, Canniff and Weslemkoon). The plutons lifted and fractured the semi pliable (ductile) ophiolite. Hydrothermal activity altered the olivines and pyroxenes to serpentines, talc, magnesite and quartz. The ophiolite dips 60-70 degrees around the margin of and normal or perpendicular to these plutons. The Elzevir tonalite has a distinct elliptical shape may be a strain ellipse related to plate tectonics. Thickening and thinning of the Elzevir Ultramafic Complex may be related to plate tectonic stresses applied to the Elzevir tonalite. A similar pattern of thickening and thinning of ophiolites around the intruding pluton is often observed in ophiolites throughout the world. The Webster-Addie Ultramafic Complex in North Carolina has this familiar pattern. (See Map #8).

In the opinion of the writer, a section of gabbroic rock in the north east corner of the ophiolitic sequence (200 metres north of the survey area) has been incorrectly assigned to the ultramafic suite (the ophiolite). The writer and the applicant have carefully traced and remapped this enigmatic gabbro to the Elzevir tonalite contact two hundred meters further north than what is currently mapped. Furthermore, the gabbro is porphyritic in many places. Pyroxenes and plagioclase laths measure three to four centimeters in places. Plagioclase and pyroxene (now hornblendes) crystals are equant, euhedral and randomly oriented with no extinctions or foliation. Major oxide analysis of this rock (Sample C169) confirms it is a gabbro (An = 80)

- The texture and characteristics of this gabbro is not like that of the gabbro (Sample B151) in the cumulate sequence.
- The contact of the gabbro with the tonalite clearly indicates that the tonalite intruded the gabbro, ie the gabbro is older than the tonalite,
- There is a narrow contact hornfels and is biotite rich (5 cm) with 50 cm of skarnified rock and proximal elongation of the gabbro's crystals indicate softening of the gabbro with flow at the tonalite contact.

## **Exploration History**

### **Past Exploration**

The area was visited by MacFarland of the GSC in 1867 and he recognized the distinct unconformity between the paleozoic rock to south of Tweed and the granite terrain to the north. It was not until 1913 that the area was systematically mapped by Miller & Knight (1913) of the OGS. Plutonic, volcanic and sedimentary rocks were mapped into packages. Advanced mapping and geological analysis of the rocks and economic geology was first completed in 1940 by Meen of the OGS. DiPrisco and Easton mapped the area in greater detail in the 80s and 90s. There continues to be uncertainty about the gabbros adjacent to the Elzevir and Weslemkoon tonalites. Surprisingly, there is no detailed inquiry by the OGS into the nature and source of the ultramafic rocks (an ophiolite) encircling the tonalites considering it is unique in Ontario.

Dillon and LeBaron (1985) did a detailed study of talc occurrences in the ultramafic complexes, but focused on the economic geology of talc: there is no mention of the tectonic history of the rocks. LeBaron et al (1987) conducted a detailed lithological and geochemical study of an outcropping in the middle of the survey area focusing on the unique ultramafic character of the rocks. Whole rock analysis of several altered ultramafics, plotted on a Jensen Cation Plot in the komatiite field. This is consistent with the ultramafic cumulate picture that is being proposed and also signals the beginning of a better understanding of these allochthonous rocks. See Appendix A for details of the unpublished data from this study. The study clearly shows that a recurring less than metre deep ultramafic/mafic cumulate sequence is present in the outcropping. Furthermore, fractionation of chromium is also present in the rock sequence.

In 1980, the Geological Survey of Canada conducted a regional geochemical survey of till (GSC OFR 3175). A single sample within the property had the highest nickel, chrome and copper concentrations in the entire Ontario Grenville and was very anomalous. Academic research into the nature and source of the ultramafics concludes that the rocks are a dismembered ophiolite. (Smith & Harris, 1996).

### **Recent Exploration**

In 2005, Marc Forget recognized the uniqueness of the rocks and contemplated staking and exploring the survey area for PGE. More recently Marc Forget and Diane Milligan (the applicant) have initiated a joint exploration program, in part on Marc's and Peter LeBaron's recommendations, that includes comparing current literature on ophiolite PGE exploration and listwanite gold occurrences with mineral assemblages found in rock in the survey area. These rocks are common in California, British Columbia and the Appalachians, but very rare here in Ontario and as such little or no specific prospecting expertise for this kind of formation has developed in Ontario.

The step or stage wise alteration of ultramafic cumulates found in the survey area, includes the alteration of chromites to ferrichromites with magnetite rims, subsequent destruction of the magnetite by CO<sub>2</sub> rich hydrothermal fluids and alteration of serpentine to talc, and then the introduction of potassium to produce chromium muscovite (mariposite, fuchsite, sericite) and the alteration of talc to magnesite and quartz. To date, Marc and Diane have successfully used magnetic susceptibility to delineate serpentinized rock (very magnetic) from highly sheared and carbonatized rock (ultra low magnetic susceptibility). The lineations are complex because a northeast striking normal fault and associated shearing and splays are interwoven with thrust faults that strike due east. The cumulate nature of the bedrock has provided many naturally weak planar joints for the formation of thrust faults and associated shear zones. So far one excellent example of a brecciated thrust slice has been discovered in the survey area. A old exploration pit thirty metres north of the collar location for DDH #2 (Appendix 2) has been examined and minor sulphides in the listwanites from this pit has been identified.

## **Project Information**

### **Commodity, Rational and Purpose of this Project**

The primary commodity sought after is orogenic listwanite quartz vein hosted gold and ultramafic/mafic reef hosted PGE. The target rock is highly altered, high chromium, high magnesium ultramafic and mafic cumulates and listwanite suite alteration zones proximal to known faults within a dismembered ophiolite.

Gold prices continue to exceed the average net cash cost per ounce for Canadian gold production. The net cash cost per ounce in 2008 varied between \$300 and \$500. The ratio of market price to net cost is expected to grow in the next decade as gold prices increase and novel mining technologies continue to improve man-hour output thus reducing net cost. PGE market prices have not fared as well as gold markets, but still exceed net production costs.

The bedrock underlying the property is a section of dismembered ophiolite. Most of the rock in the survey area is hydrothermally altered ultramafic to mafic cumulates and is the only known fossil ocean floor sequence of ophiolite in Ontario. The association of PGE mineralization with ophiolites makes this property very prospective and at the same time problematic. Some of the exploration challenges are linked to the stratigraphical nature of ultramafic/mafic cumulates: fractionated layers are often very narrow and mineralized zones can be less than ten centimetres. Therefore, high-density sampling is the basis for successful exploration. Furthermore, multiple repeating sequences of cumulates due to magma chamber rejuvenation are often observed in ophiolites. It is for this reason that the rock-sampling portion of the program has a higher than usual sampling density and whole rock lithochemistry is necessary to help identify the fraction, size and frequency of cumulates.

Palladium is very mobile in the secondary environment and is a proxy for platinum exploration. Palladium has a tendency to accumulate in the humic material of low-lying areas. In addition to the rock-sampling portion of the survey, a small humus geochemical survey has been designed and is proposed.

In the southwest portion of the property (Survey Area A), reconnaissance exploration has identified many "silicified knobs" with zero magnetic susceptibility. They are spatially associated with the thrust fault shown on geology Map #5 and gabbros. Advanced silicification and destruction of magnetite in ultramafic rocks is consistent with listwanite suites of mineralization. Similar knobs in Survey Area C & D are altered peridotites or talcose rocks some with high content of erosion resistant magnetite grains (altered chromite grains) and silicified. Shallow drilling for talc in Section C intersected a 10-metre wide listwanite suite and is very prospective for gold mineralization. Consequently careful use of bedrock magnetic susceptibility will assist in the exploration program.

Turn of the nineteenth century gold prospectors found limited quartz float in the survey area and some related old pits have been located. Two talc exploration pits are located in the northeast portion of the survey area. All prior exploration and mining efforts have failed to recognize the uniqueness of the ultramafic cumulates (an ophiolite) and their distinct association with PGE mineralization and economic potential. The oversight includes the highly anomalous concentrations of nickel/chrome the Geological Survey of Canada found in the clay fraction of till, the results of unpublished data from an OGS survey and sulphides found in drill core from the northeast section of the property. The purpose of this survey is to systematically explore the property for gold and PGE anomalies and map the unique lithology in greater detail.

## General Discussion on Au, PGE Exploration

PGE elements are known to fractionate out with chromium and nickel in the more juvenile ultramafic magmas still rich in olivine. The control and enrichment of PGE along these “reefs” is linked to the presence of an immiscible sulphide phase. Olivine rich (dunite) cumulate and the metamorphic equivalent serpentinite strata is an excellent exploration target. If the spreading centre magma chamber is rejuvenated with primitive mantle magma, a new series of cumulates and PGE enrichment can occur. The repetition of one metre or less sized ultramafic cumulate sequences discovered by LeBaron (1987) is similar to the productive PGE reefs found in South Africa and Australia. It is important to note that some of the richest PGE reefs are measured in centimetres of thickness. This makes for a very narrow exploration target which can repeat several times over ten metres.

The aforementioned PGE depositional environment is syngenetic: the PGE is fractionated out of the maturing cumulate and enriched during the formation of the olivine rich phase. The enrichment may or may not be economical. Many ophiolites do not have economic PGE in the primary syngenetic cumulates. Some do! Those that do have a close relationship with sulphides. They are sometimes massive, but more often disseminated. Many theories about sulphide rich and sulphide poor PGE enrichment in cumulates abound and is beyond the scope of this report. The depositional environment, namely ultramafic/mafic cumulates, is a first order target and the survey area is a first order target.

Cameron & Hattori (2004) have examined the dispersion of PGE in the secondary environment and conclude that palladium is an excellent proxy for PGEs. Humus in wetlands tends to accumulate the very mobile palladium better than all other surficial media. Another advantage of humus is that low density sampling is applicable because of the amplified signal to noise ratio. They found that eskers pose a problem in that they can contain a large amount of Pd bearing rock fragments that leach into the surrounding watershed and contaminate or distort the bedrock dispersion pattern. The survey area is covered with a thin veneer of till with no eskers or other large reservoir of glacial material nearby. Therefore the methodology suggested by Cameron & Hattori will be used in this survey.

The presence of silicified rock and breccia in the southwest end of the property coincides with a normal fault and a thrust fault. The presence of structures in close proximity to highly silicified rock and rock that has been intensely carbonatized is indicative of intense hydrothermal activity. The paucity of mariposite or fuchsite (chromium muscovite) and sulphides during reconnaissance in the fall of 2010 is a legitimate concern. Chromium muscovite is an important indicator of gold mineralization in ultramafic rocks. It signals the introduction of hydrothermal potassium into a potassium impoverished ultramafic rock and the co-incident destruction of ferrichromite and solubilization of chrome. This phase of the multiphase alteration of ultramafic rock is considered the final or late stage: the gold deposition stage.

Magnetite, present in some rock horizons and absent in others within the survey area was destroyed by the action of CO<sub>2</sub> rich hydrothermal fluids. Ultra low magnetic susceptibility is a very useful diagnostic to locate highly altered rocks. Furthermore, ultramafic rocks with very low magnetic susceptibility are very difficult to hammer or chisel, and is invariably highly silicified. This characteristic is a very quick and useful way to identify rock through moss and lichen cover. Using magnetic susceptibility can also aid in identifying lineaments associated with structures that control gold mineralization. (Hansen et al, 2004). Using these tools help to qualify outcrop for rock sampling and areas where digging shallow pits to bedrock are worth the effort.

Core logs for DDH #2 (Appendix B) drilled in 1985 in the northeast section of the survey area intersects sequences of altered rock including intersections of sulphides and very fine-grained light green mica. The presence of sulphides and chromium-muscovite in the sequence of altered ultramafic rocks is very significant and is certainly qualifies as a listwanite.



Two types of mineral deposits are sought after within this survey area:

- 1) Very narrow syngenetic "reef" PGE mineralization closely associated with ultramafic/mafic cumulates and sulphides,
- 2) Epigenetic hydrothermal listwanite hosted gold closely associated with quartz and structures.

Therefore, careful assessment of both the stratigraphy of ophiolitic rocks AND structures within the survey area is critical to the effectiveness of rock sampling.

**What we do and do not know:**

We currently know that the Skootamata River is part of a major thrust fault that strikes east west and borders the southern part of the survey area. This is consistent with the foliation strike of the ophiolitic pile: rock sampled by LeBaron (1987) and sheared soapstone foliation in the Milligan quarry strike east west. Furthermore, a silicified brecciated zone discovered by the writer and applicant also strikes east west. The wetland that strikes east west in the northern part of the survey area is bordered by a small rock scarp on the south shore that dips to the vertical and is parallel the dip of the foliation in DDH #2. This structural feature may also be a thrust fault. However, the degree of dismemberment of the ophiolite, and the possibility of recumbency and transverse faults is not known at this time.

**What we would like to know:**

- 1) Where are the east-west and north-south continuity of cumulates (and discontinuities)?
- 2) What are the direction and magnitude of structures?
- 3) How do patterns of topographic highs or lows (erosion resistant knobs) relate to lithology?
- 4) What kind and where rock types are located?
- 5) Do these rocks or soils contain higher than usual levels of Au, Pt and Pd?
- 6) What other properties of these rocks, such as talc mineralization, have economic value?

**How we plan to get this information:**

- 1) Use a Beep Mat to scan for silicified rocks, sulphides and magnetite as we traverse,
- 2) Use a Kappa Meter to measure magnetic susceptibility (MS),
- 3) Build a database of rock type & locations as we randomly traverse and,
- 4) Locate and collect rock samples from outcrop or using shallow trench/pits where required and a rock saw for deep cuts (this helps get below the weather rind quickly for fresh rock and also helps to elucidate the cumulate aspect of the rock when cut perpendicular to the foliation). Please note that a rock hammer and chisel is useless in the very soft talc rock and the very hard-silicified rock in this terrain.
- 5) Additionally, significant effort will be made to locate green mica (chromium mica) and pyrite.

The collection of humus from wetlands is straight forward: about two litres of completely decayed vegetative humus soil will be collected for each sample and stored in olefin bags used to collect mud from drill rigs, and force dried before shipping to the lab for analysis (see Analytical and Sampling section for details). Sample P012 is a control from humus over unconformable sediments of the Flinton Group of rocks. Locations have been identified using topography and drainage patterns.

For rock sampling, the number of and direction of traverses will be a function of cumulate layer density, lithology and degree of alteration and bedrock exposure. Test trials with the Beep Mat have revealed that lithology varies significantly from metres to tens of metres. Planning systematic traverses rules out the variability of strata and outcrop. Therefore an estimate of rock samples based on a density of one sample per 35 square metres has been established based in part on past experience. The total samples for each sub-area is listed on Map #3. Traverses will be random and adjusted as we learn more once out in the field. Systematic traverses work well for geophysical and soil surveys, but rock outcrops are randomly located and pose special challenges.

## Analytical & Sampling Procedures

Humus soil samples were taken from the very black completely decayed vegetative top or humic layer of hydrologic catchments (wetlands). Rock samples were taken from bedrock sequences of gabbros and ultramafic rocks using a gas-powered rock saw with a diamond blade. Care was taken to obtain a very good cross section of the many rock types within the survey areas. Very little float was sampled.

Before shipping to the lab, humus soil samples were force warm air dried for two weeks and then sieved to separate large organic humic material from the -80 mesh fraction. The +80 mesh organic material was ashed at high temperature and the ash returned and blended with the -80 mesh fraction. The average gross weight of samples sent to SGS Toronto was in the order of 0.5 kilogram. SGS Laboratories in Toronto analyzed soil and rock samples for gold, platinum and palladium. SGS crushed and pulverized rocks samples to obtain a -80 mesh fraction. Thirty grams of -80 mesh fraction from soil and rock was used for standard fire assay.

Fire assay followed by Optical Emission Spectroscopy or OES (also called Atomic Emission Spectroscopy or AES) finish was used to analyze all material for Au, Pt and Pd. The analytical detection limit for Au, Pt and Pd is 5, 10 and 5 ppb respectively. SGS calls this their exploration quality analysis. In addition, twenty samples from metre wide ultramafic cumulate sequences were sent to SGS Lakefield and analyzed for major oxides and chromium using X-Ray Fluorescence.

## Results & Conclusions

### Results:

- 1) **Soil Assays:** The results for 32 humus soil samples are in Table #1 at the back of this report. This table also lists the UTM NAD83 Zone 18 easting and northing locations for each sample. The original project called for 20 samples, but the discovery of additional water catchments increased that number to 32 samples. See Map #4 for locations of samples and their relative positions within each hydrologic catchment.
- 2) **Rock Assays:** The results for 130 rock assays are in Table #2 at the back of this report. This table includes the UTM location and description of the rocks. Locations of the rock samples with respect to the claim fabric and topography are on Maps #6 and 7.
- 3) **Major Oxides:** The results for the major oxide analysis of twenty rocks from three groups of ultramafic sequences are in Table #3. The locations for these samples are found in Table #3 and on Map #6.

### Conclusions:

- 1) **Precious Metals:** Sulphides are universal minerals that accompany gold and PGE in their deposits. Visible sulphides are completely lacking in the mafic/ultramafic sequence of rocks found in the survey area. Furthermore, mariposite (chromium muscovite or fuchsite) is a constant companion of gold in listwanites and this mineral is also completely lacking in the survey area with the sole exception of a reference to very fine green mica in core from DDH#2 (Appendix B). Major oxide analysis of the most altered rocks reveals that potassium (an important constituent of mariposite) is extremely low, though consistent with ultramafic petrogenesis, is an indication of low potassium concentrations in the hydrothermal fluids.

The lack of these important indicator minerals explains the complete absence of gold and PGE except for the elevated PGE concentrations along the east-west trending catchment in the north of the property. This trend corrolates with pyrite and green micas having been identified in DDH#2 (see Appendix B) and minor pyrites found in proximal test pits by the writer.

- 2) **Lithology:** The entire survey area overlies unaltered and altered high magnesium gabbros and serpentinites. There is a strong correlation between topography and the presence of schistose, talcose and highly carbonatized ultramafics, but not necessarily with structures. This necessitates a fresh approach to exploration because several unexplored low lying wet areas may be host to quality soapstone and have no obvious kinematic indicators. Thrust structures may underlie these areas without any significant indication.
- 3) **Soapstone:** Several new soapstone or carving stone occurrences have been discovered. Namely Samples B164, B153, A166 and A130. The thickness of soapstone horizons (pods) is measured in metres and is therefore easy to overlook.
- 4) **Structures:** Two new structures have been identified:
  - A lineament of carbonate talc schists (soapstone). See Map #5 for location. This lineament includes the existing bulk sample soapstone quarry.
  - A quartz carbonate vein at the intersection of hydro line and road as shown on Map #5.

## Discussions

### **Rocks from the Rockmanite soapstone quarry: Samples B145 to B153**

The rocks from the soapstone quarry vary considerably in terms of major oxide chemistry and degree of alteration over only a few metres. It is without question that magnesium rich gabbro and serpentinites are inter-fingered and most likely represents cumulates associated with juvenile magma fractionation during rifting centre emplacement as opposed to forceful injection of gabbroic magma into ultramafic layers (or vice versa). The rock layers dip on average 70 degrees to the south and is indicative of much uplift and reflects a regional trend. The foliation of the more schistose rocks strike east west. Thrust slip is observable in several highly silicified brecciated veins and major thrust faults in proximity to the quarry.

All the above samples were analyzed for Au, Pt, Pd and major oxides plus chromium. Referring to Table #1, all samples assayed very low for precious metals. Though the focus of this project was on precious metals and based on the ultramafic nature of these rocks and structures, special attention should be given to the soapstone in this test quarry.

Referring to major oxide data in Table #3, magnesia ranges from 13% to 31%: related to gabbros and extremely altered serpentinites respectively. This cumulate sequence thus represents an excellent cross section of the upper ultramafic/lower gabbroic zone of an ophiolite. The consistently high concentration of chrome in all samples is additional evidence of the ultramafic nature of these rocks. This sequence is only 160 metres ESE from a similar and very well documented rock cross-section (LeBaron, 1987), though more mafic than ultramafic. Refer to Appendix B.

The proximity of brittle gabbros and less competent ultramafic cumulate layers to a major trust fault resulted in the preferential shearing and subsequent hydrothermal alteration of the serpentinites. There is evidence of strain shadows at the macroscopic level. The red soapstone (Sample B150) is highly foliated (very schistose) and carbonatized whereas the dark green to black soapstone (Sample B153) has no carbonates or micas including chlorite. These samples are only 12 metres apart. The texture of sample B153 is highly crystalline (large spherical radiating crystals of a yet unidentified alteration mineral(s)) which can only occur in a strain free environment.

Loss on ignition ranged from 3% to 17%: B149 the least altered gabbro and B150 being the most altered ultramafic (serpentine) respectively.

The diversity of soapstone material in terms of colour, hardness and texture can be an economic advantage because sculpture artists are attracted to carving stone with unique and varied visual and working characteristics. The two major disadvantages of some of these rocks are the high schistosity and the small tonnage.

Sample B153 and B148 are superior quality carving stones. Both stones have very few platy minerals or calcite, yet have hardness ranging from 2 to 3 (they are both soft talcose rocks). B153 is softer than B148, but both yield to carving with similar toughness and equally in all directions. This characteristic is desirable because the material is very consistent to the carver and will readily take intricate details. The table below compares some important soapstone properties:

Sample	Hardness	Colour	Calcite	Micas	Toughness	Luster
B149	3-5	Red Green Foliations	Disseminated Calcite	Chlorite	Medium (may spall)	Medium
B150	3	Greenish Grey	NIL	NIL	High	High
B153	2.5	Dark Green Black	NIL	NIL	Very High	High

**Rocks from the Hydro Line in the north east of the property:  
Samples C159 to C164**

Though situated within the north hydrologic catchment, which tested positive with elevated levels of precious metals, these rocks have very low Au, Pt and Pd concentrations and are thus not contributors. These rocks differ from the soapstone quarry rocks in that they all have ultramafic protoliths and are essentially the same rock throughout the 10 m sequence. Major oxides and LOI do not vary significantly as is the case with the rocks from the soapstone quarry. The LOI is significantly lower and relatively constant at around 6.6%, whereas the soapstone quarry rocks have LOI that vary from 3% to 17%. These rocks are not suitable for soapstone, but do help to constrain the hydrothermal system mentioned below.

**Rocks at the road and hydro line intersection in the northeast:  
Samples C165 to C168 & C173**

These rocks are very altered ultramafics because of their high magnesia content and the only recognizable rock within the samples is serpentinite. They are part of a large hydrothermal system probably connected with the listwanite occurrence at the old talc test pits 250 m towards the northwest and constitute vein material. They have very high LOI and this is consistent with the amount of visible carbonate (calcite) stringers, ribbons and breccia matrix. Significant hematization is also observed. See photo 3 for C173 and photo 4 for C166.

The very low silica and very high carbonate content is indicative of significant mass flow of silica out of the rock into veins and CO<sub>2</sub> into the rock. The quartz vein locations have not been located, but the writer did note that the base of a rock cut along the road 250 m to the west was massive quartz and regrettably did not sample this rock. This quartz occurrence warrants further investigation, but is located at the edge of a private residence and requires permission for access.

**Rocks from the northwest corner of the survey area:  
Samples A112 to A130 & B129**

Sample A112 has a striking appearance: it is a highly altered serpentinite set in a talc carbonate matrix. Referring to photo 5 for details, notice the megacrysts of serpentinite set in a matrix of talc carbonate. This rock is not porphyry. The serpentinite has gradually "dissolved" into the matrix via metasomatism. Visible magnetite is also present and may be due to conversion of spinel chromite to spinel magnetite. No major oxide analysis is available for this series of rocks. Precious metal assay

results indicate that no detectable Au, Pt or Pd is present in these rocks. Samples A113 to A128 are massive unaltered gabbros. Sample B129 is difficult to identify in hand sample examination, but is probably a high magnesium unaltered fine-grained gabbro. Sample A130 is a pure compact high magnesium crystalline chlorite with some foliation. It has a specific gravity of 2.91, a soapy feel and hardness of 2.5. The location of A130 is probably a contact with ultramafic rocks and this area warrants further exploration, in particular the low lying area to the west.

### **General Comment on Geomorphology:**

What became clear early into the project was the fact that in some areas massive unaltered gabbro dominated and in other areas cumulate sequences of unaltered gabbro and altered schistose mafics/ultramafics dominated without any noticeable transition due to overburden. Massive gabbro always coincided with knobs and higher terrain. Gabbro whalebacks always had normal stoss and lee: smooth northern stoss and quarried southern lee just as one sees in granites. Cumulate layers strike east-west because the formations are at the south end of the uplift by the Elzevir Tonalite. Knobs associated with these rocks often had an "inverted" stoss and lee: northern quarried rock with associated talus and southern smooth stoss with accumulation of till. This geomorphologic appearance is diagnostic for cumulates.

### **Recommendations**

Since much of the surface area is covered with overburden (mainly till) or wetlands, and talcose rocks have been identified in several new locations, the potential for talc and soapstone remains considerable. The paucity of precious metals and associated indicators such as sulphides in the middle and southern parts of the survey area is disappointing, but nonetheless important because we now know that this area is not enriched in gold or PGE. The occurrence of several positive PGE signals in the north part of the property, and possibly anomalous in consideration of similar levels detected in the Lac des Isle area from identical material, deserves special consideration.

The northwest survey area overlies ultramafic rock with high talc carbonate content and this area should be prospected in detail for talc and soapstone potential,

The northeast corner of the survey area overlies a southeastern striking listwanite and east west striking hydrologic catchment with elevated values of gold, platinum and palladium in the wetland sediments. It is recommended that a medium density soil and/or rock geochemical survey be conducted in this area to constrain the provenance of the Au + PGE signals. Re-drilling DDH#2 (see Appendix B) should be seriously considered because the pyrite rich core from this hole cannot be located and was drilled directly below the wetlands where Au and PGE signals have been detected.

Additional talcose rock in the northern boundary of the existing soapstone quarry (Sample B153) with excellent carving stone characteristics (i.e. zero carbonate, zero mica and hardness of 2.5) has been identified. This rock is on strike with a northeast trending talc carbonate schist (soapstone) lineament. It is recommended that stripping, trenching and limited shallow test drilling or pits be conducted along this lineament to properly delineate the surface extent, depth and quality of the soapstone and possibly talc.

## Project Cost

### Pt, Pd, Au Assays

Qty	Analytical Code	Description	Price	Cost (incl tax)
160	PREP89	Crush & pulverize to -80 mesh	\$8.15	\$1,657.71
32	DRY10	Soil dry at 105 deg. C	\$2.15	\$ 47.46
32	SCR30	Soil screen to -80 mesh	\$3.80	\$ 83.62
160	FAI323	OES Finish 5ppb to 10ppm	\$12.85	\$2,613.69
20	XRF76C	Whole Rock Major Oxides + Cr	\$39.90	\$ 901.74
<b>Subtotal</b>				<b>\$5,345.81</b>

### Consumables & Rentals

Qty	Supplier	Description	Price	Cost
1	Staples	6 Pack of Shipping Boxes	\$18.84	\$ 18.84
1	Com. Solutions	Prospecting Supplies	\$108.11	\$ 108.11
2	BMR	Weekly Rental Gas Rock saw	\$248.60	\$ 497.20
2	CDR Creighton	12" diamond blade	\$289.96	\$ 579.92
<b>Subtotal</b>				<b>\$1,204.07</b>

### Prospecting Labour

Qty	Description	Price	Cost
7	Days sampling, recording & mapping (Marc Forget)	\$300/day	\$2,100.00
3	Days report writing (Marc Forget)	\$300/day	\$ 900.00
3	Days add in kind sampling & mapping (Marc Forget)	\$150/day	\$ 450.00
10	Days add in kind sampling & mapping (Diane Milligan)	\$150/day	\$1,500.00
<b>Subtotal</b>			<b>\$4,950.00</b>

### Travel Mileage

Qty	Description	Price	Cost
10	85 km Marc travel to/from property @\$0.45/km		\$ 382.50
10	25 km Diane travel to/from property @\$0.45/km		\$ 112.50
1	340 km Take samples to SGS in Toronto @ \$0.40/km		\$ 153.00
<b>Subtotal</b>			<b>\$ 648.00</b>

### Final Project Cost

Cost of project as per invoices & receipts	<b>Total</b>	<b>\$12,147.88</b>
--------------------------------------------	--------------	--------------------

**Note: Copies of all relevant invoices are at the end of this report.**

## Acknowledgements

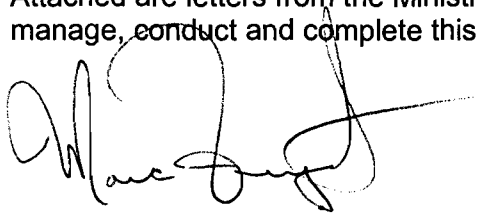
Special thanks to Peter LeBaron. Peter is the District Geologist of the Southeastern Ontario District of the Ontario Geological Survey. His technical advice in and out of the field and making the unpublished data from Report 32622 available has been very helpful. Also special thanks to the Ontario Geological Survey for the creation of and access to the drill core library and logs in Tweed, Ontario. The core library represents millions of dollars of primary raw data for future reference.

## Statement of Qualifications

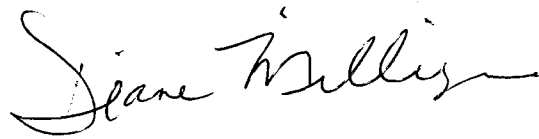
I, Marc Thomas Forget, am a licensed prospector in the Province of Ontario, Licence Number 1001310, have six years of experience in prospecting and I have no interest in Mining Land Claims 3006585, 3006598, 1077481 other than technical and prospecting matters. Furthermore, I will manage and supervise all the work to be done in this project. This report was written and completed by Marc Thomas Forget on March 10, 2011.

The applicant, Diane Milligan, is a licensed prospector in the Province of Ontario, Licence Number 1003980 and currently is bulk sampling and testing soapstone from the survey area. Diane assisted Marc Forget in this project and provided many valuable suggestions.

Attached are letters from the Ministry District Geologist attesting to our qualifications to properly manage, conduct and complete this project.



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Diane Milligan  
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## Daily Work Log

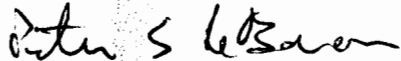
Date	Time	Task	Date	Time	Task
Oct. 25/10	8:30- 5:15	Locate & Collect 22 soil samples	Oct. 30/10	9:15- 3:15	Locate & Cut 11 rock samples Scattered Showers
Oct. 26/10	8:45- 5:45	Collect 10 soil samples Locate & Cut 7 rock samples	Oct. 31/10	9:45- 6:15	Locate & Cut 15 rock samples Map & log data
Oct. 27/10	8:37- 4:31	Locate & Cut 13 rock samples Map & log data	Nov. 1/10	8:00- 5:31	Locate & Cut 20 rock samples Map & log data
Oct. 28/10	8:16- 4:55	Locate & Cut 10 rock samples Map & log data	Nov. 2/10	8:07- 5:53	Locate & Cut 22 rock samples Map & log data
Oct. 29/10	8:49- 5:51	Locate & Cut 17 rock samples Map & log data	Nov. 3/10	8:25- 5:06	Locate & Cut 15 rock samples Map & log data

Reference Letter for Marc Forget - Prospector, Marmora, Ontario

March 16, 2011

I have known Marc Forget since October, 2006, when I accompanied him on a property examination of his base metal prospect in Tudor Township in the course of my duties as District Geologist at the Ministry of Northern Development and Mines in Tweed. Since that time, I have had many interactions with Marc, involving both field excursions and geological discussions, and consider him to be a dedicated and enthusiastic prospector.

Having seen examples of Marc's work in the field, including claim staking, line cutting, results of his geophysical and geochemical surveys, trenching, and channel sampling, I can attest that his work is methodical, thorough, and precise. His research and report writing skills are excellent and his background in science is evident in his ability to assimilate and understand geological reports and academic papers. His exploration projects are well-considered with respect to mineral potential and exploration methodology, based upon research of historical exploration work, local geology, and current theories of ore deposit models and he understands that thorough field work remains the foundation of a successful exploration project.



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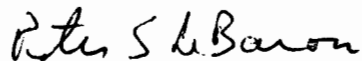
Reference Letter for Diane Milligan - Prospector, Tweed, Ontario

March 16, 2011

I have known Diane Milligan since 2007 through her involvement in the development of a soapstone dimension stone prospect in Elzevir Township, southeastern Ontario. Initially in partnership with two other local prospectors, Diane is now individually responsible for the exploration work, report writing and test marketing of the material and, through the course of her work on the property, has increased her knowledge of geology and the mineral exploration process.

Within the past year, Diane has continued to gain geological knowledge, research skills and prospecting experience by assisting prospector Marc Forget in exploration projects within mafic and ultramafic rocks in southeastern Ontario in the search for gold, platinum group elements and base metal mineralization.

Diane's enthusiasm, eagerness to continue to learn about mineral exploration and development and her capacity for hard work are evident. She has become involved with the Southern Ontario Prospectors' Association, serving as Vice President, and is a valuable member of the local prospecting community.



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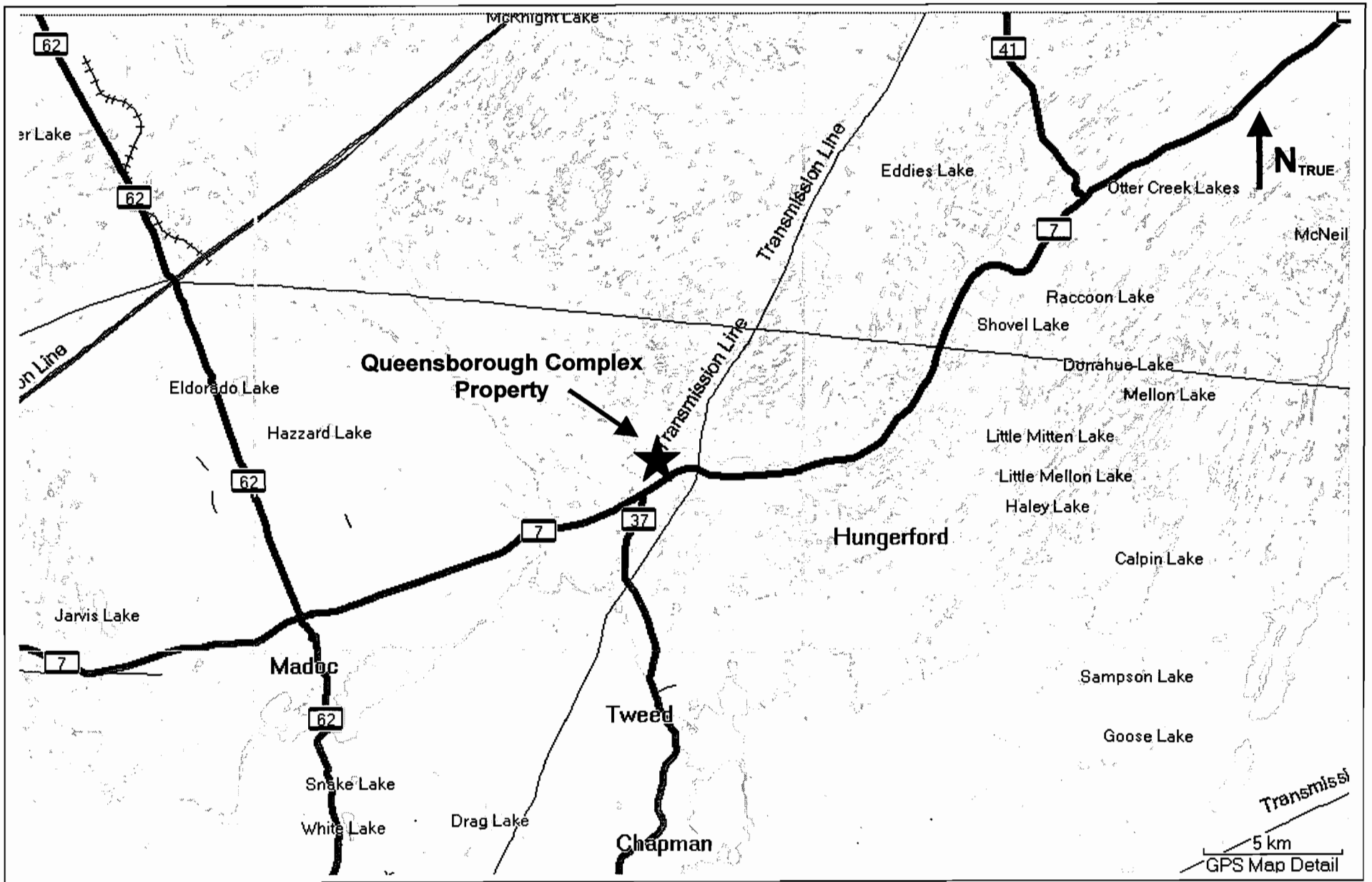
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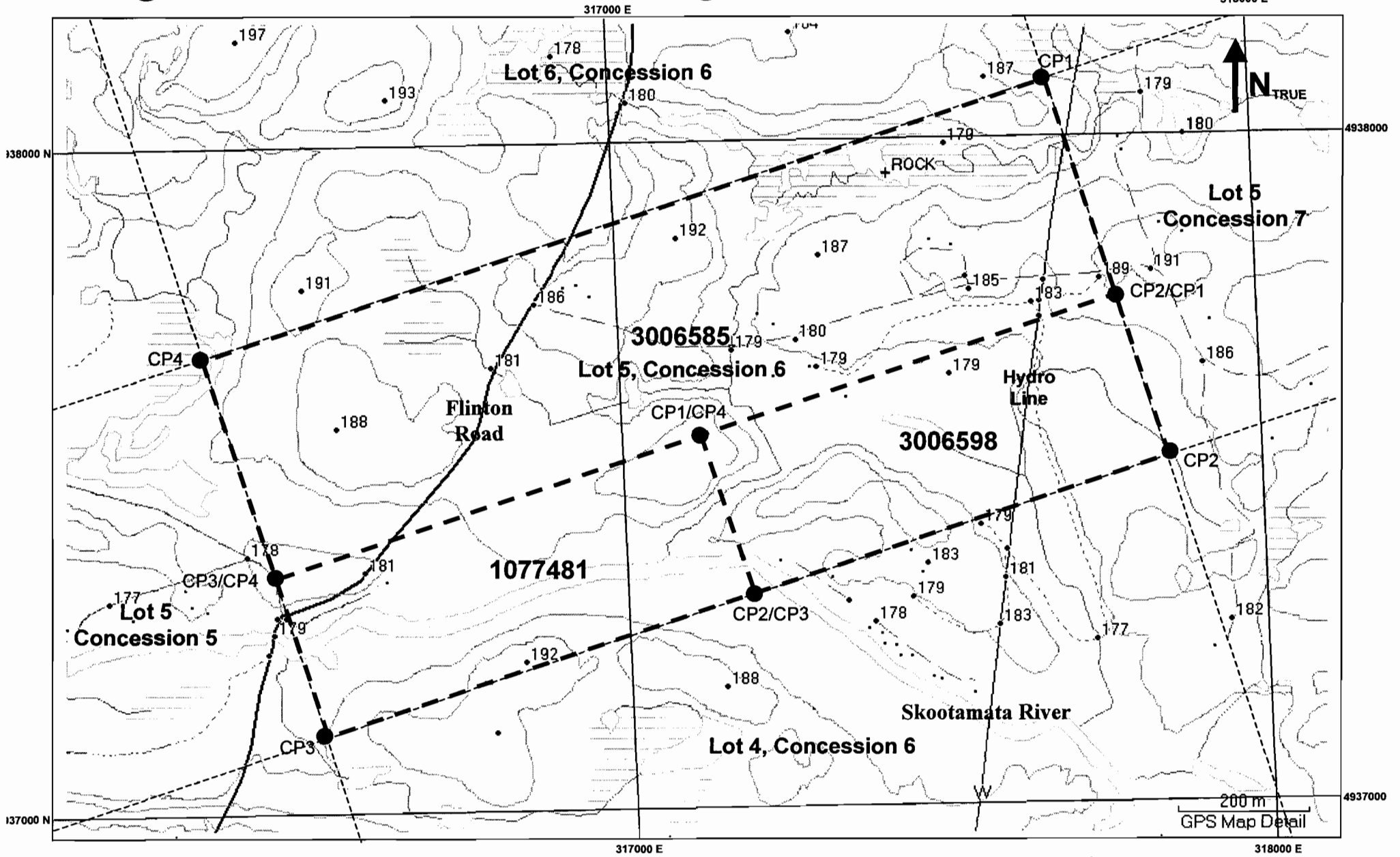
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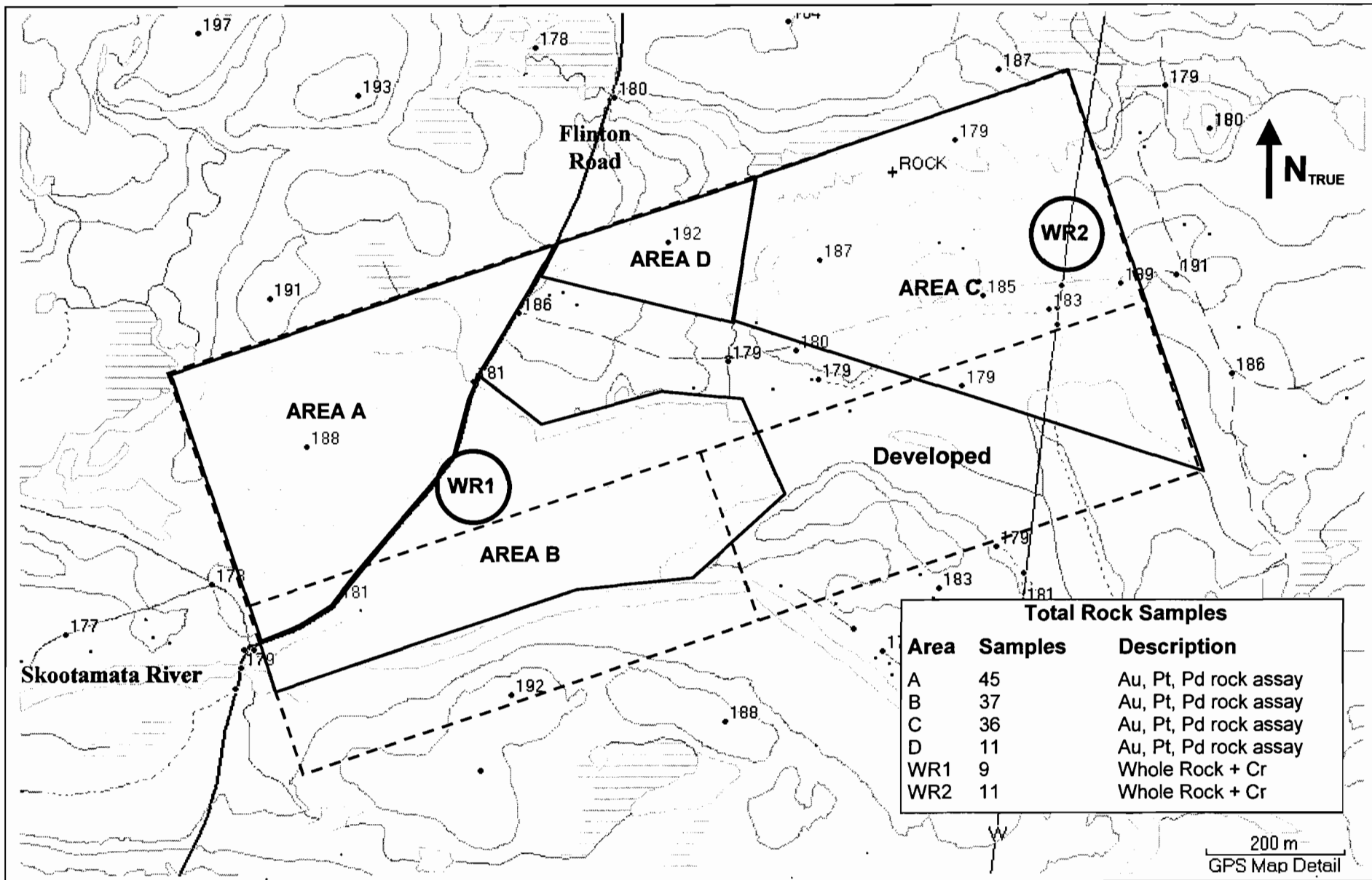
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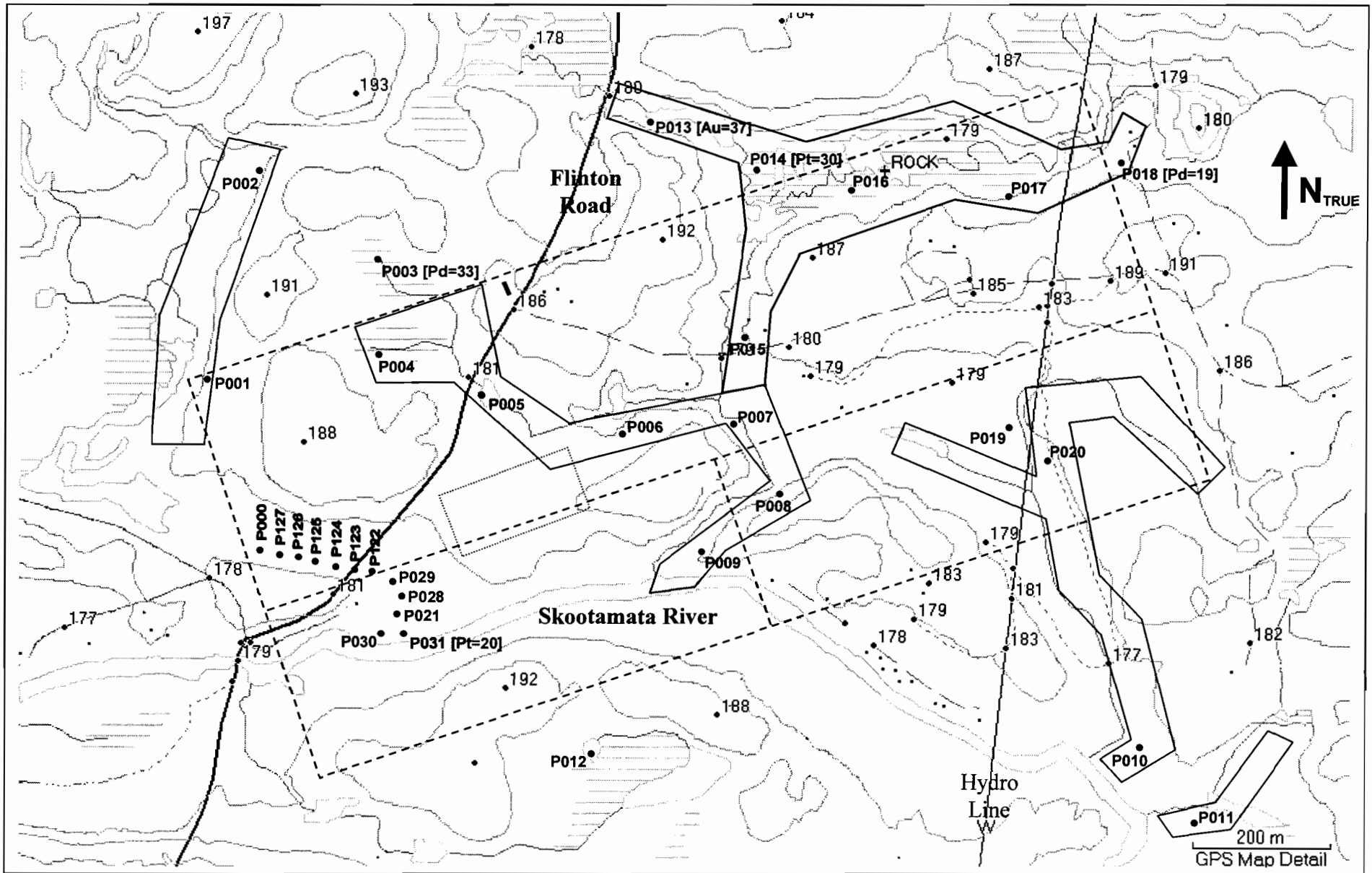
Map 1: Mining Lands Road Map



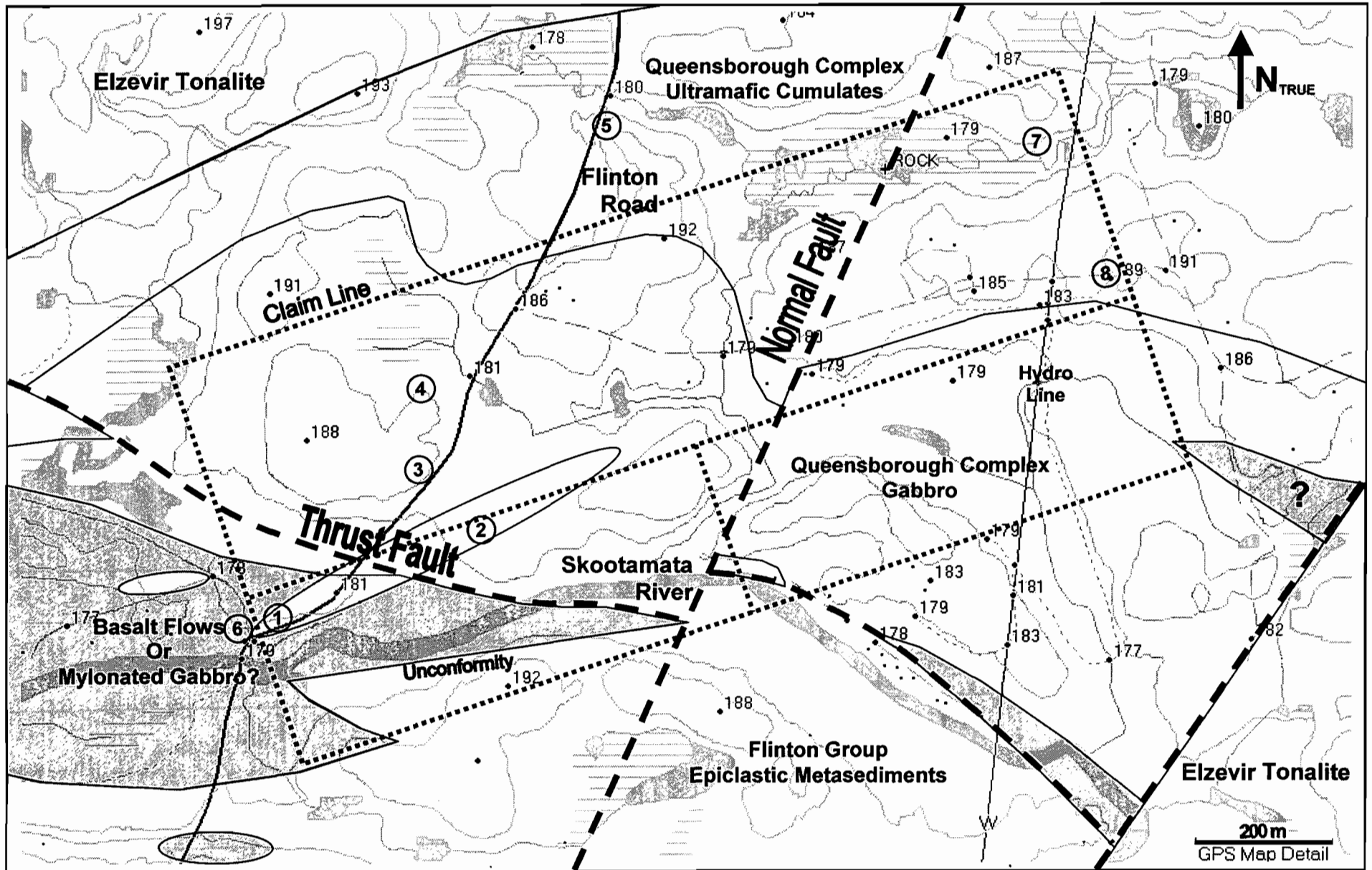
Map 2: Mining Lands Claim Map



**Map 3: Overview of Survey Areas for Rock Sampling & Sampling Density by Area**



Map 4: Humus Soil Sample Locations (Palladium)

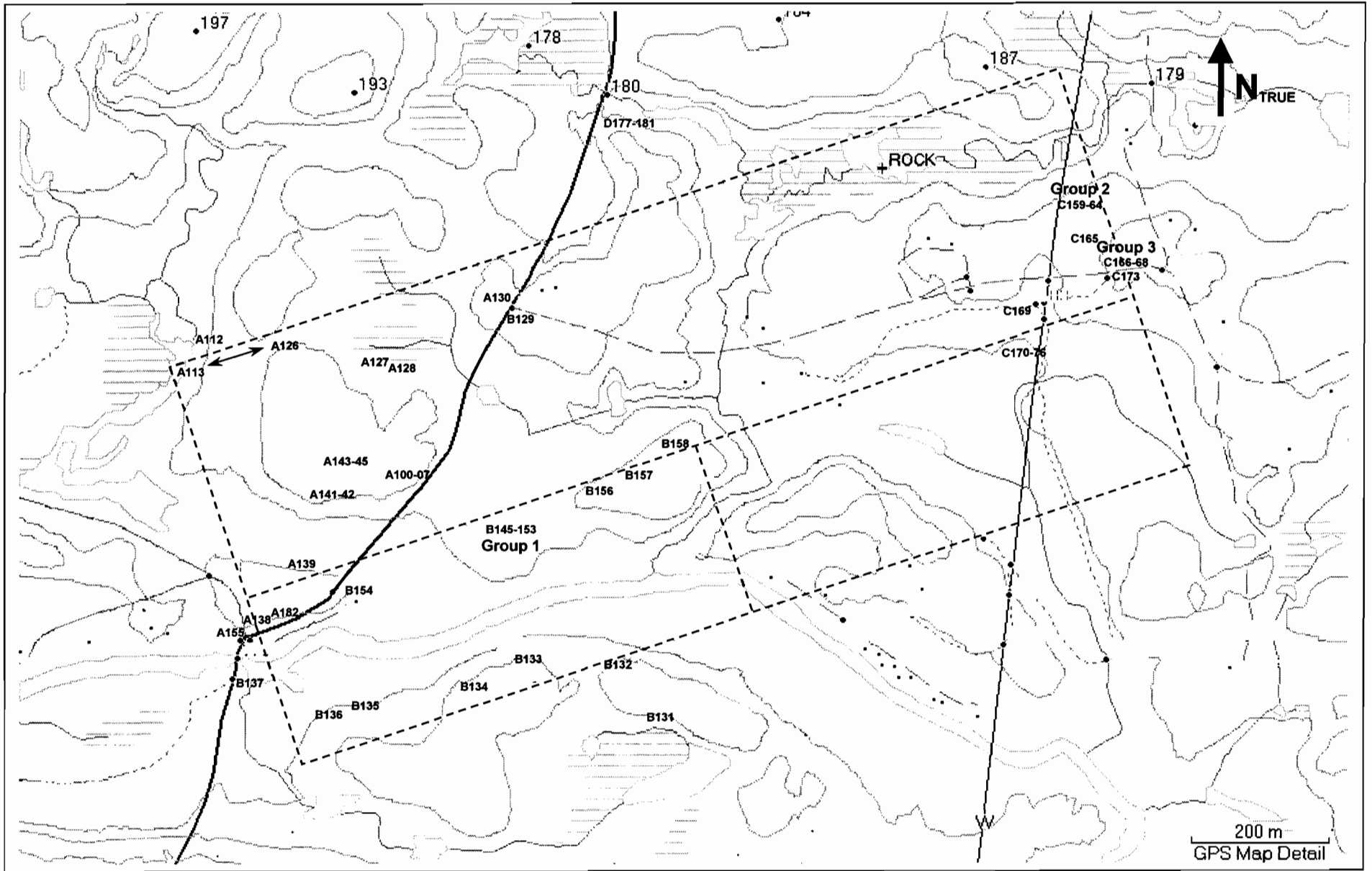


- 1 Anomalous Ni & Cr in till, GSC OFR 3175
- 2 Cumulate Sequences & Soapstone Test Quarry
- 3 Gabbro Quartz Breccia
- 4 Old pit

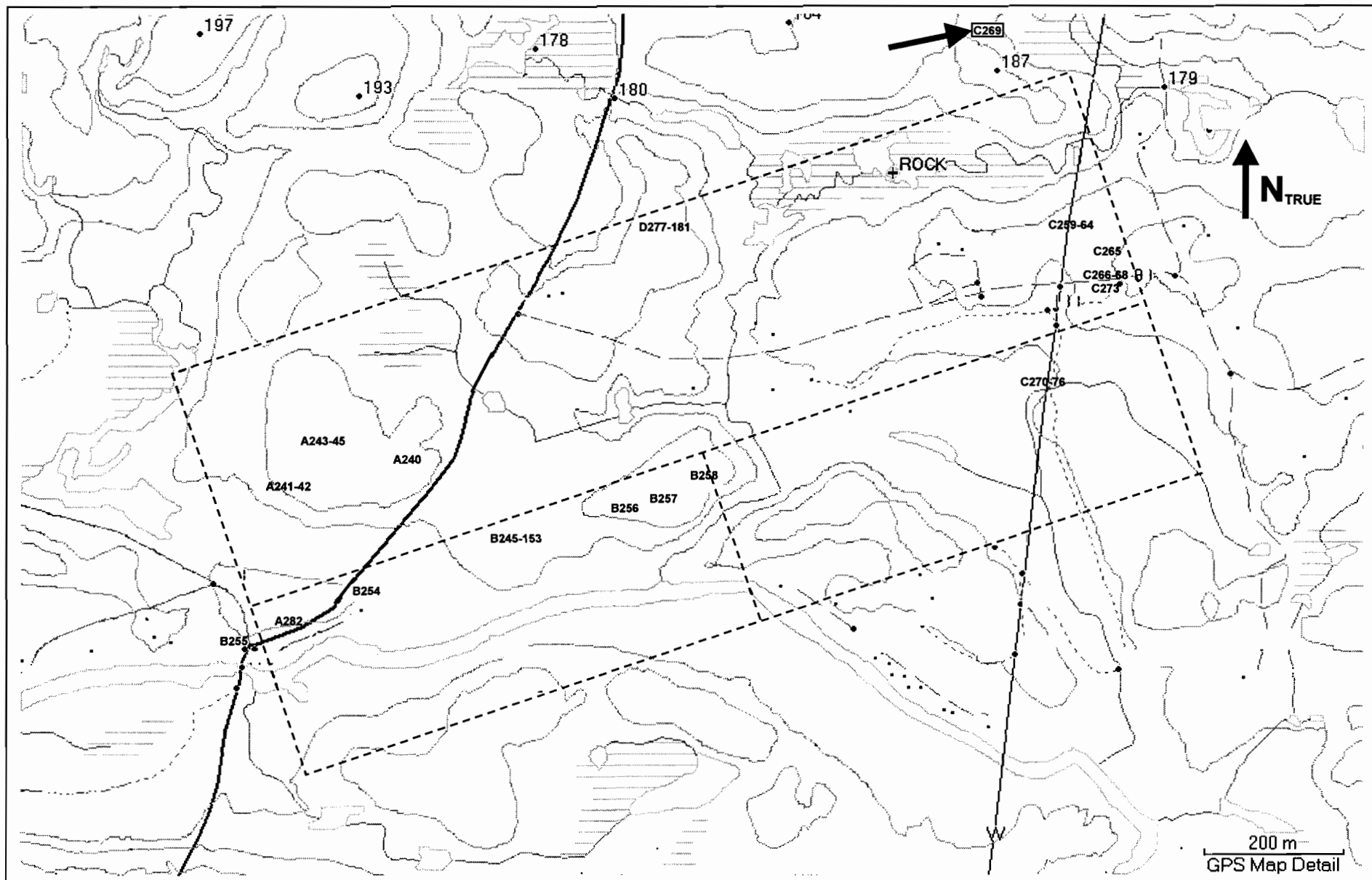
**Map 5: Geology of Survey Area**  
Data from OGS Map P3181

- 5 Radiolarite
- 6 Soapstone
- 7 DDH #2 & two old pits, see Appendix B
- 8 Qtz Carbonate Vein

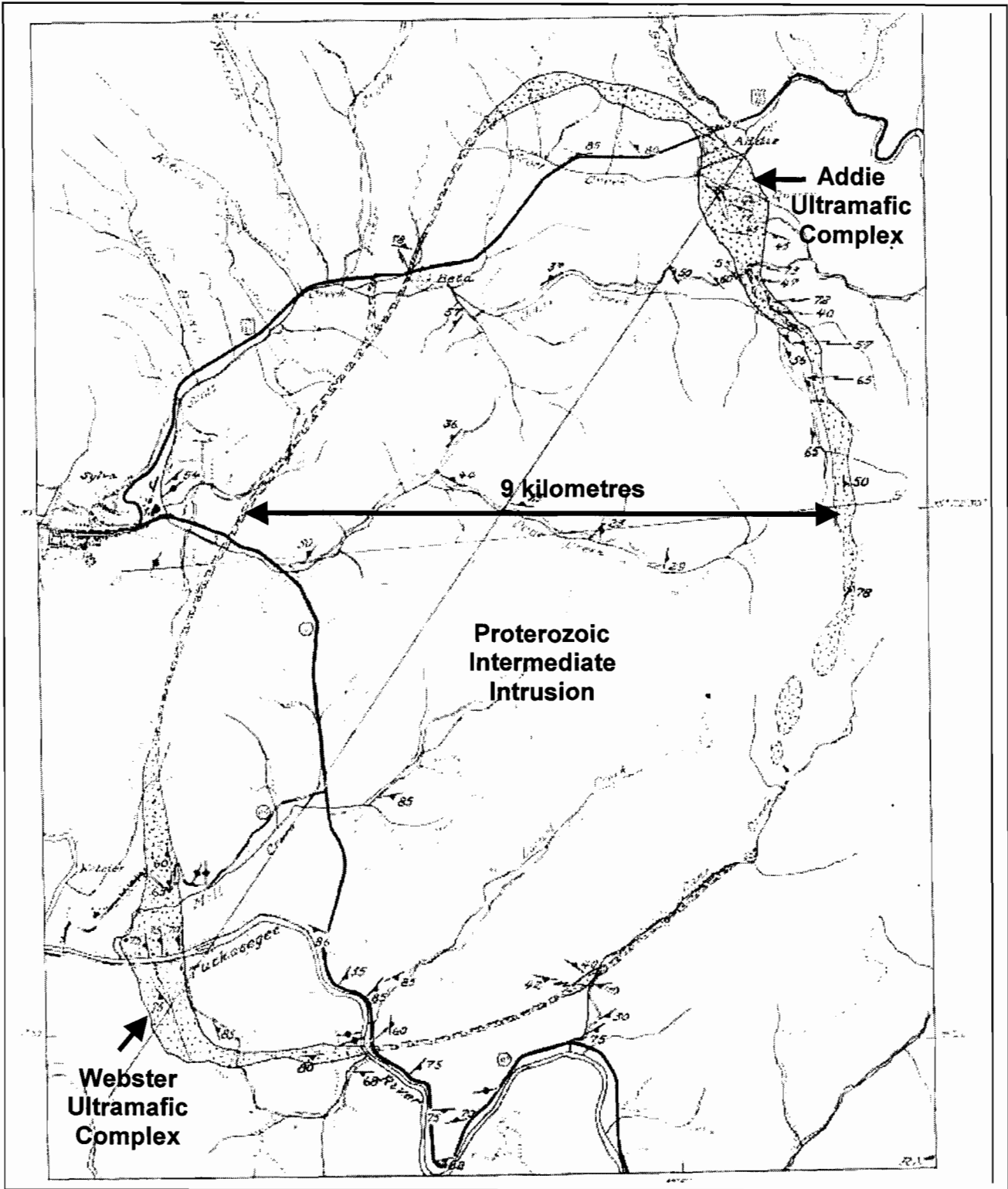




Map 6: Location of 100 Series rock samples



**Map 7: Location of 200 Series rock samples**



**Map 8: Webster-Addie Ultramafic Complex, North Carolina**

## TABLES

**Table #1: Soil Sample Locations, Descriptions and Assay Results**

Sample	Au ppb	Pt ppb	Pd ppb	East	North	Description
P000	<5	<10	<5	316452	4937448	Sandy Humus
P001	<5	<10	<5	316396	4937691	Humus
P002	<5	<10	<5	316478	4937992	Humus
P003	<5	<10	33	316651	4937863	Humus
P004	<5	<10	<5	316646	4937721	Humus
P005	<5	<10	5	316793	4937659	Humus
P006	<5	<10	<5	317000	4937595	Humus
P007	<5	<10	<5	317162	4937611	Humus
P008	<5	10	<5	317224	4937503	Sandy Humus
P009	<5	<10	<5	317099	4937419	Sandy Humus
P010	<5	<10	<5	317737	4937123	Humus
P011	<5	<10	<5	317815	4937014	Humus
P012	<5	<10	<5	316949	4937137	Humus
P013	37	<10	<5	317051	4938049	Humus
P014	<5	30	<5	317199	4937973	Humus
P015		9	<5	317181	4937733	Humus
P016	<5	<10	<5	317340	4937942	Sandy Humus
P017	<5	<10	<5	317567	4937928	Sandy Humus
P018		11	19	317726	4937967	Humus
P019	<5	<10	5	317563	4937570	Humus
P020		10	<5	317617	4937533	Humus
P021	<5	<10	<5	316673	4937349	Humus
P022	<5	<10	<5	316632	4937407	Sandy Humus
P023	<5	<10	<5	316608	4937412	Sandy Humus
P024	<5	<10	<5	316576	4937419	Sandy Humus
P025	<5	<10	<5	316542	4937426	Sandy Humus
P026	<5	<10	<5	316506	4937431	Sandy Humus
P027	<5	<10	<5	316476	4937439	Sandy Humus
P028	<5	<10	<5	316670	4937377	Sandy Humus
P029	<5	<10	<5	316650	4937399	Sandy Humus
P030	<5	<10	<5	316651	4937307	Sandy Humus
P031		6	20	8 316688	4937304	Sandy Humus

**Note: Easting and Northing are in UTM NAD83, Zone 18 datum.**

**Table #2: Rock Sample Locations, Descriptions and Assay Results**

Note: Easing and Northing are in UTM NAD83, Zone 18 datum

Sample	Au	Pt	Pd	East	North	Rock Description	Colour
A100	<5	<10	9	316741	4937531	Mylonitized Gabbro	Dark Green
A101	14	<10	<5	316746	4937536	Massive Quartz	Dark Grey + Gossan
A102	<5	<10	<5	316749	493742	Massive Quartz	Cream
A103	<5	<10	<5	316753	4937548	Serpentine Chlorite Carbonate schist	Dark Green
A104	<5	<10	<5	316757	4937553	Serpentine Chlorite Carbonate schist	Dark Green
A105	<5	<10	9	316757	4937559	Serpentine Talc Carbonate schist	Med Green to grey
A106	<5	<10	6	316744	4937563	Massive gabbro (plag free)+epidote	Dark Green
A107	<5	<10	<5	316733	4937559	Serpentine Carbonate schist	Med green
A108	<5	<10	<5	316728	4937614	Massive gabbro (plag free)	Med grey green
A109	<5	<10	6	316700	4937581	Massive Gabbro	Med Green
A110	<5	<10	<5	316689	4937583	Massive quartz epidote	Serpent green
A111	<5	<10	<5	316694	4937577	Mylonitized Hornblendite	Mottled Olive Green
A112	<5	<10	<5	316415	4937709	Serpentine megacryst in talcose matrix + mag	Mottled white & green
A113	<5	<10	10	316403	4937694	Mylonitized hornblendite	Dark green grey
A114	10	10	9	316415	4937695	Hornblendite breccia	Charcoal grey
A115	<5	<10	<5	316414	4937692	Hornblende Quartz Chlorite schist	Medium grey
A116	<5	<10	<5	316414	4937688	Massive epidotized gabbro	White & Dark green
A117	<5	<10	<5	316431	4937699	Massive epidotized gabbro	White & Dark green
A118	<5	10	9	316451	4937701	Massive quartz epidote	Serpent green
A119	<5	<10	<5	316469	4937701	Massive gabbro (plag free)	Dark green grey
A120	<5	<10	<5	316485	4937701	Mylonitized hornblendite, epidotized	Dark green grey
A121	<5	<10	5	316495	4937704	Mylonitized hornblendite, epidotized	Dark green grey
A122	<5	<10	<5	316489	4937694	Massive recemented quartz	Light green cream
A123	<5	<10	<5	316494	4937697	Massive Hornblendite in Qtz Vein	Black + Dark Green Qtz
A124	<5	<10	<5	316512	4937700	Massive Gabbro (plag free)	Light grey green
A125	<5	<10	<5	316522	4937713	Massive Gabbro (plag free)	Light grey green
A126	<5	<10	<5	316526	4937707	Massive Gabbro Minor alt to epidote	Dark + Med Green
A127	<5	<10	<5	316679	4937684	Ditto More plagioclase (30%)	Med Green to grey
A128	<5	<10	<5	316709	4937682	Mylonitized hornblendite, epidotized	Dark green grey
A130	<5	<10	<5	316868	4937778	Mylonitized hornblendite, epidotized	Dark green grey

A140	<5	<10	<5	316731	4937542	Tectonized Gabbro	Dark Green
A141	<5	<10	<5	316631	4937498	Massive Gabbro	Med Green
A142	<5	<10	7	316638	4937493	Carbonate Chlorite Serpentine Schist	Light Green
A143	<5	<10	10	316658	4937528	Carbonate Chlorite Serpentine Schist	Red Green
A144	<5	<10	<5	316657	4937534	Carbonatized Serpentinite	Med Green
A145	<5	<10	<5	316651	4937535	Massive Hornblendite	Dark Green
A155	<5	<10	7	316472	4937295	Massive gabbro	Medium Green
A182	<5	<10	<5	316558	4937328	Massive Vein Qtz	White
A240	<5	<10	<5	316732	4937542	Tectonized Gabbro	Dark Green
A241	<5	<10	<5	316632	4937498	Massive Gabbro	Med Green
A242	<5	<10	7	316639	4937493	Carbonate Chlorite Serpentine Schist	Light Green
A243	<5	<10	6	316659	4937528	Carbonate Chlorite Serpentine Schist	Red Green
A244	<5	<10	<5	316658	4937534	Carbonatized Serpentinite	Med Green
A245	<5	<10	<5	316652	4937535	Massive Hornblendite	Dark Green
A282	<5	<10	<5	316558	4937328	Massive Vein Qtz	White
B129	<5	<10	<5	316872	4937755	Massive recemented quartz	Light green cream
B131	<5	<10	<5	317079	4937166	Massive Hornblendite in Qtz Vein	Black + Dark Green Qtz
B132	<5	<10	<5	317011	4937239	Massive Gabbro (plag free)	Light grey green
B133	<5	<10	<5	316889	4937252	Massive gabbro (plag free)	Light grey green
B134	<5	<10	<5	316797	4937224	Massive Gabbro Minor alt to epidote	Dark + Med Green
B135	<5	<10	<5	316618	4937191	Massive Gabbro More plagioclase (30%)	Med Green to grey
B136	15	<10	<5	316576	4937178	Qtz porphyry Float + minor pyrite & chalco	Off white
B137	<5	<10	<5	316465	4937247	Rusty altered sericite tuff (float in flood plain)	Cream
B138	<5	<10	<5	316497	4937311	Fine grained qtz diorite + minor pyrite Float	Light grey
B139	6	<10	<5	316551	4937398	Tectonized hornblendite or basalt?	Dark Grey + Gossan
B145	12	<10	6	316890	4937455	Massive Gabbro	Dark Green
B146	20	<10	<5	316891	4937460	Altered Gabbro	Med Green
B147	<5	<10	5	316895	4937465	Hematized Carbonate Talc Chlorite Schist	Green Red Soapstone
B148	<5	<10	<5	316905	4937469	Massive Talc Chlorite Serpentinite	Light Green Soapstone
B149	<5	<10	<5	316919	4937481	Massive Pyroxenite (now Hornblendite)	Dark Black Green
B150	<5	<10	<5	316914	4937475	Hematized Carbonate Talc Chlorite Schist	Red Green Soapstone
B151	<5	<10	<5	316901	4937474	Massive Pyroxenite (now Hornblendite)	Dark Green
B152	<5	<10	<5	316898	4937479	Brecciated Gabbro (minor qtz carb stringers)	Light Green
B153	<5	<10	<5	316896	4937484	Massive soapy altered "anthophyllite" like rock	Dark Green Soapstone
B154	<5	<10	7	316621	4937351	Altered gabbro 10% plag	Med Green

B156	<5	<10	<5	316960	4937483	Altered gabbro 10% plag	Med Green
B157	<5	<10	<5	317065	4937529	Chlorite Serpentine schist	Med Green
B158	6	<10	<5	317120	4937572	Silicified Chlorite Serpentine Schist	Med Green
B245	25	<10	9	316890	4937455	Massive Gabbro	Med Green
B246	6	<10	<5	316891	4937460	Carbonatized Serpentinite Chlorite Schist	Med Green
B247	<5	<10	7	316895	4937465	Carbonatized Talc Chlorite Schist	Green red Soapstone
B248	<5	<10	<5	316905	4937469	Carbonate Talc Schist	Light Green Soapstone
B249	<5	<10	<5	316919	4937481	Massive Hornblendite	Dark Black Green
B250	<5	<10	<5	316914	4937475	Hematized Carbonate Talc Schist	Red Green Soapstone
B251	<5	<10	<5	316901	4937474	Massive Hornblendite Minor plag	Isotropic Green
B252	<5	<10	<5	316898	4937479	Brecciated Gabbro, min hematite carb veinlets	Light Green
B253	<5	<10	<5	316896	4937484	Massive Talc Actinolite	Dark Green Soapstone
B254	<5	10	5	316621	4937351	Altered gabbro 10% plag	Med Green
B255	<5	<10	8	316471	4937295	Massive Gabbro	Green
B256	<5	<10	<5	316960	4937483	Altered gabbro 10% plag	Med Green
B257	57	<10	<5	317065	4937529	Chlorite Serpentine schist	Med Green
B258	8	<10	<5	317120	4937572	Silicified Chlorite Serpentine Schist	Med Green
C159	<5	<10	<5	317693	4937914	Qtz. Carb Serpentinite + hem stringers	White & Med green
C160	<5	<10	<5	317691	4937906	Carbonate Chlorite Serpentine Schist	Med Green
C161	<5	<10	<5	317690	4937900	Silicified Chlorite Serpentinite + minor Hem Strg	Light Green
C162	<5	<10	<5	317689	4937894	Qtz Carbonate stringers in Serpentinite	Med Green
C163	<5	<10	<5	317688	4937889	Qtz Carbonate Serpentine Breccia + hem strg.	Mottled White & Green
C164	<5	<10	<5	317689	4937884	Qtz. Carb Serpentinite Breccia + hem stringers	White & Med green
C165	<5	<10	<5	317709	4937858	Qtz Carbonate stringers in Serpentinite	White & Med Green
C166	<5	10	12	317779	4937806	Carbonate Chlorite Serpentine Schist	Med Green
C167	<5	<10	9	317779	4937796	Carbonate Chlorite Serpentinite	Med Green
C168	<5	<10	<5	317797	4937797	Talc Carbonate Chlorite Serpentinite	Med Green
C169	<5	<10	<5	317630	4937725	Massive Gabbro Float (provenance 500 m north)	Peppered Green & Cream
C170	<5	<10	<5	317622	4937695	Silicified Chlorite Serpentine Schist	Med Green
C171	<5	<10	7	317622	4937689	Talc Carbonate Chlorite Schist	Green Soapstone
C172	<5	<10	<5	317617	4937684	Massive Hornblendite	Med Green
C173	<5	20	24	317784	4937791	Ribbon Qtz Carb veins in Serpentinite + Mag	Med Green
C174	<5	<10	7	317644	4937673	Massive Serpentinite	Med Green
C175	<5	<10	7	317649	4937669	Massive Serpentinite + hematite stringer	Med Green
C176	<5	<10	<5	317653	4937662	Qtz Carbonate stringers in Serpentinite	Med Green

C259	<5	<10	<5	317692	4937914	Chlorite Serpentine schist	Med Green
C260	<5	<10	<5	317692	4937906	Silicified Chlorite Serpentine Schist	Med Green
C261	<5	<10	<5	317691	4937900	Qtz. Carb Serpentinite + hem stringers	White & Med green
C262	<5	<10	<5	317690	4937894	Carbonate Chlorite Serpentine Schist	Med Green
C263	<5	<10	<5	317689	4937889	Silicified Chlorite Serpentinite + minor Hem Strg	Light Green
C264	<5	<10	<5	317690	4937884	Qtz Carbonate stringers in Serpentinite	Med Green
C265	<5	<10	<5	317710	4937858	Qtz Carbonate Serpentine Breccia + hem strg.	Mottled
C266	<5	10	10	317780	4937806	Qtz. Carb Serpentinite Breccia + hem stringers	White & Med green
C267	<5	<10	<5	317780	4937796	Qtz Carbonate stringers in Serpentinite	Med Green
C268	<5	<10	<5	317798	4937797	Carbonate Chlorite Serpentine Schist	Med Green
C269	<5	<10	<5	317631	4937725	Massive gabbro from bedrock	Peppered Green
C270	<5	<10	<5	317623	4937695	Silicified Chlorite Serpentine Schist	Med Green
C271	<5	<10	<5	317623	4937689	Talc Carbonate Chlorite Schist	Green Soapstone
C272	<5	<10	<5	317618	4937684	Massive Hornblendite	Med Green
C273	<5	10	14	317785	4937791	Ribbon qtz Carb veins in Serpentinite + Mag	Med Green
C274	<5	<10	<5	317645	4937673	Massive Serpentinite	Med Green
C275	<5	<10	9	317650	4937669	Massive Serpentinite +hematite stringer	Med Green
C276	<5	<10	<5	317654	4937662	Qtz Carbonate stringers in Serpentinite	Med Green
D177	<5	<10	<5	317010	4938033	Serpentinite + Mag	Buff
D178	<5	<10	<5	317005	4938025	Blue Schist?	Blue
D179	<5	<10	13	317002	4938019	Altered Serpentinite	Buff
D180	<5	<10	<5	317000	4938014	Sericite Schist	White
D181	<5	<10	<5	316999	4938008	Serpentinite Schist	Cream
D277	<5	<10	<5	317019	4938032	Serpentinite + Mag	Buff
D278	<5	<10	<5	317017	4938026	Blue Schist	Blue
D279	<5	<10	15	317014	4938021	Altered Serpentinite	Buff
D280	<5	<10	<5	317010	4938015	Sericite Schist	White
D281	<5	<10	11	317009	4938010	Serpentinite Schist	Cream



**Table #3: Whole Rock Analysis of Select Ultramafic Cumulate Sequences**

See Table #2 for UTM locations

Sample	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	LOI %	SUM %	Rock Description
<b>Group 1: See Map 6</b>														
B145	46.7	8.48	9.18	17.5	12.00	1.09	0.13	0.65	0.02	0.13	0.42	3.18	99.5	Massive Gabbro
B146	38.5	9.14	11.50	18.8	10.70	0.61	0.06	2.19	0.29	0.16	0.26	8.00	100.1	Altered Gabbro
B147	49.1	1.94	5.36	26.0	5.74	0.07	< 0.01	0.06	< 0.01	0.06	0.69	11.30	100.3	Hematized Carbonate Talc Chlorite Schist
B148	42.4	6.94	7.28	24.6	5.50	0.06	< 0.01	1.54	0.19	0.09	0.29	11.30	100.2	Massive Talc Chlorite Serpentinite
B149	44.1	12.20	9.56	18.0	10.10	1.25	0.19	0.62	0.07	0.11	0.29	2.96	99.5	Massive Pyroxenite (now Hornblendite)
B150	44.6	0.68	4.33	22.7	10.60	0.06	< 0.01	0.01	< 0.01	0.10	0.30	16.70	100.1	Hematized Carbonate Talc Chlorite Schist
B151	44.2	14.50	7.03	12.9	12.10	1.07	1.88	0.41	0.03	0.12	0.14	5.28	99.6	Massive Pyroxenite (now Hornblendite)
B152	44.4	6.83	8.96	16.7	14.20	0.75	0.10	0.85	0.07	0.17	0.27	5.92	99.2	Brecciated Gabbro (qtz carb stringers)
B153	31.9	17.20	7.79	30.9	0.44	0.06	0.01	0.27	< 0.01	0.02	0.10	11.90	100.6	Massive soapy altered "anthophyllite" like rock
<b>Group 2: See Map 6</b>														
C159	42.1	9.05	11.00	22.5	7.39	0.48	0.06	0.43	0.03	0.14	0.34	6.51	100.2	Qtz. Carb Serpentinite + hem stringers
C160	41.8	7.22	10.50	20.5	10.30	0.50	0.06	0.51	0.03	0.15	0.38	7.99	100.1	Carbonate Chlorite Serpentine Schist
C161	43.3	5.00	10.50	21.4	11.30	0.34	0.04	0.66	0.02	0.16	0.45	7.08	100.3	Silicified Chlorite Serpentinite + minor Hem Strg
C162	45.1	5.06	10.40	21.9	10.20	0.39	0.04	0.75	0.02	0.13	0.45	5.53	100.1	Qtz Carbonate stringers in Serpentinite
C163	46.0	3.70	9.93	23.2	10.20	0.20	0.02	0.48	0.03	0.14	0.37	5.92	100.2	Qtz Carbonate Serpentine Breccia + hem strg.
C164	44.1	5.93	9.56	23.6	8.86	0.24	0.03	0.39	0.03	0.13	0.38	6.54	99.8	Qtz. Carb Serpentinite Breccia + hem stringers
<b>Group 3: See Map 6</b>														
C165	27.2	3.26	6.88	19.7	21.00	0.13	< 0.01	0.28	0.03	0.20	0.26	21.30	100.3	[Qtz + 60% Carbonate stringers] in Serpentinite
C166	30.4	3.28	10.80	19.5	18.30	0.18	0.01	0.31	0.01	0.26	0.46	16.90	100.4	55% Carbonate + Chlorite Serpentine Schist
C167	39.5	5.81	9.69	22.1	11.30	0.27	0.03	0.37	0.04	0.15	0.45	10.30	100.1	Carbonate Chlorite Serpentinite
C168	37.4	8.47	11.70	24.6	7.78	0.12	0.01	0.19	< 0.01	0.11	0.37	10.10	101.0	Talc Carbonate Chlorite Serpentinite
<b>Sample C169 is gabbro float from outcropping 500 m to the north where Sample C269 was obtained</b>														
C169	47.9	17.10	6.01	12.2	12.00	2.47	0.84	0.18	< 0.01	0.09	0.12	1.38	100.3	Green Gabbro (Erratic float)

## **Appendix A: Unpublished OGS Report 32622**

### **Introduction**

This is a condensed version of selected data from Report 32622 of the Ontario Geological Survey LeBaron et al (1987). The report consists of whole rock and mineralogical data on ultramafic and mafic rock samples collected from the survey area by Peter LeBaron of the OGS in 1987. LeBaron was interested in the talc potential of the highly altered ultramafics at the time of the survey.

### **Normative Ultramafics**

Debate continues around the advantages and disadvantages of strictly using whole rock geochemistry plus trace elements as the basis for petrogenetic classification of igneous intrusive and extrusive rocks. Ultramafic rocks are no exception to this endless century old uncertainty. To complicate matters even more, as was previously mentioned, geologists continue to incorrectly map or refer to ophiolites segments as orogenic gabbro intrusions or extruded basalts. The writer is educated in chemistry and physics (electronics) where systematics and nomenclature is more rigorous, but fully understands and appreciates the advantages of the textural characterization of rocks: especially kinematic and chemical alteration of rocks often associated with metallic deposits. The current IUGS definition of high-Mg rocks (Le Bas, 2000) for komatiites ignores the familiar spinifex texture and is defined only in terms of their whole rock geochemistry. The writer uses the current IUGS recommendations for ultramafic and mafic rocks including mantle-derived rocks.

### **Sample Locations**

Due to the very large geographical area associated with the Queensborough Complex, LeBaron only collected eight samples of rock from the proposed survey area. However, a road cut along the Flinton Road and within the property, was carefully examined and sampled by LeBaron because of the unique and visually obvious cumulate sequence of the gabbro. Not all the samples were analyzed and as such, a whole rock geochemistry gap in the cumulate sequence continues to exist.

### **Whole Rock Geochemistry**

Referring to Table #1, samples E-J5-2, E-J5-5, E4, E5 & E7 are ultramafic komatiitic rocks. This does not mean that they are flows: the writer nor Peter LeBaron has observed any spinifex textures in the field. It does mean that they are derived from juvenile mantle magma and is consistent with the proposed designation of ophiolitic rock. Sample locations are on Geology Map #5.

Sample E-J5-2 is of special interest because it has whole rock geochemistry consistent with that of Spinel Lherzolite. Table #2 contains raw data and derived data. The raw data is from Table #1. The derived data removes the volatiles (LOI) from the rock and then w/w normalizes the percent content of the major oxides and ignores the insignificant contribution from Na, K, Ti, P and Mn.

Samples E4 to E7 were taken from a road cut as shown on Drawing #1 below. This sequence of cumulates may represent a progressive fractionation of ultramafic to gabbroic rocks. Unfortunately, the sampling was inadequate for a comprehensive analysis.

### **Conclusions**

Whole rock geochemistry of samples taken from the survey area confirms the ultramafic and cumulate nature of the rocks. This plus other supporting evidence such as the very high

nickel/chromium concentrations and the radiolarite supports the Smith & Harris conclusion that this formation is a dismembered ophiolite.

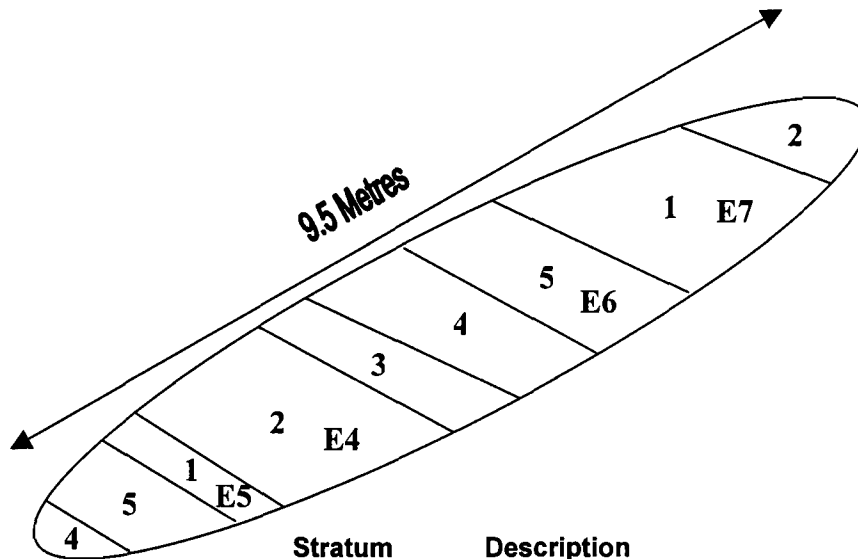
**Table #1:** Whole rock geochemistry of samples from survey area (OGS Report 32622)

X-RAY ASSAY LABORATORIES		13-JUL-87		REPORT 32622		REFERENCE FILE 28217		PAGE 1					
SAMPLE	SiO2	Al2O3	CaO	MgO	Na2O	K2O	Fe3O2	MnO	TiO2	P2O5	CR2O3	LOI	SUM
E-J5-1	49.10	13.90	10.30	8.79	2.70	0.17	12.00	0.22	1.31	0.11	0.03	0.93	99.6
E-J5-2	35.80	1.69	1.45	34.90	0.05	0.01	11.80	0.10	0.10	0.01	0.81	13.30	100.0
E-J5-3	47.70	10.30	12.50	17.50	1.18	0.17	8.51	0.16	0.71	0.07	0.18	1.23	100.2
E-J5-5	35.60	1.64	9.66	27.00	0.01	0.01	8.11	0.15	0.10	0.01	0.56	17.40	100.3
E4	29.60	2.23	15.30	18.10	0.01	0.01	16.60	0.16	0.28	0.01	0.21	17.90	100.4
E5	48.80	2.09	9.11	21.30	0.03	0.01	12.90	0.16	0.27	0.02	0.14	5.16	100.0
E6	40.20	10.30	7.43	21.30	0.62	0.07	11.30	0.15	2.00	0.27	0.15	5.54	99.3
E7	47.90	2.53	7.95	23.10	0.01	0.01	12.80	0.14	0.49	0.02	0.39	4.77	100.1

**Table #2:** LOI Subtracted & % w/w Normalized Whole rock analysis for E-J5-2

Major Oxides	SiO2	MgO	Fe3O2	Al2O3	CaO	CR2O3	% Total
LOI removed	35.80	34.90	11.80	1.69	1.45	0.81	86.5
LOI normalized	41.39	40.35	13.64	1.95	1.68	0.94	99.9
S-Iherzolite*	44.20	42.20	8.29	2.05	1.92	0.44	99.1
Cations	40	40	40	4	1.5	2	

\* Data from Maaloe, S & K. Aoki 1977. The major element composition of the upper mantle estimated from the composition of Iherzolites. Contributions to Mineralogy and Petrology. 81, 350-357



Stratum	Description	Protolith
1	f.g. act-carb-hem (serp-mgt)	Ultramafic Komatiite
2	coarse trem-act-carb	Ultramafic Komatiite
3	fine act-carb	Ultramafic Komatiite
4	talc-carb-hem	Ultramafic Komatiite
5	chlor-mgt-hem	Basaltic Komatiite

**Drawing #1:** Data from LeBaron (1987)

## Appendix B: Hay Loft DDH #2

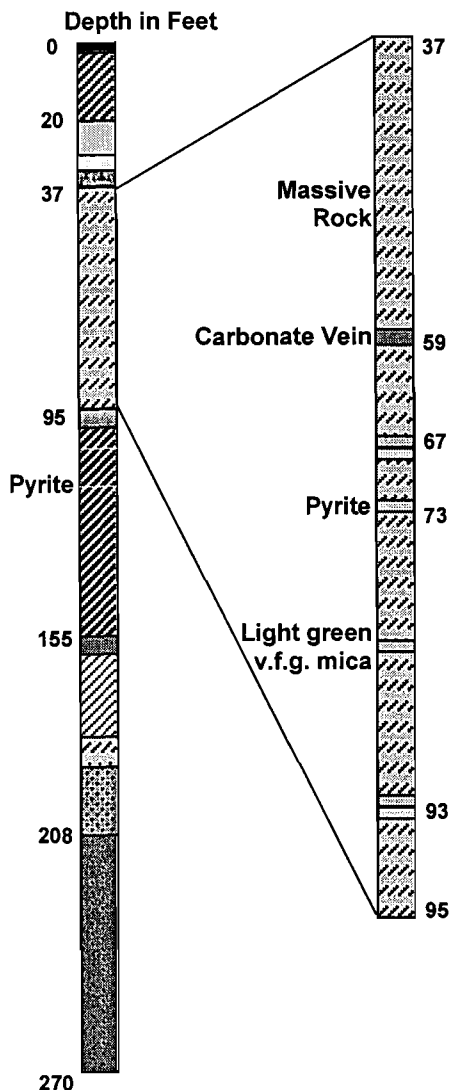
### Introduction

The survey area lies over low quality talc mineralization. The less than metre wide ultramafic cumulates are not favourable for large consistent tonnage of talc. Exploration for talc did however progress to drilling programs. Alteration minerals such as ferrochromite (magnetite rimmed chromites), chlorite, quartz, sulphides and sericite contaminate the purity and colour of the talc. However, these minerals are associated with listwanite type alteration suites.

In 1985, James Byer drilled two holes in what was then called the Hay Loft Property: DDH #2 in the northeast corner of the property and DDH #1 just east of the property. DDH #2 was drilled under an east west striking hydrologic lineament. This lineament is significant because it strikes parallel to a thrust fault and is intersected by a normal fault as shown on Geological Map #5. Unfamiliarity with listwanite type alteration and a focus on talc exploration rather than on gold probably explains the lack of interest in these rocks.

Locating the actual core has been problematic. The writer and applicant are still looking for the core because it is valuable primary data. However, the drill core log for DDH #2 was located in the OGS electronic file system and a copy is attached to Appendix B. (AFRI 31C11SW0010)

### DDH2 Core Log Analysis



Lithological intersections have been transcribed from the drill log onto the adjacent diagram. The diagram represents the various rocks observed and logged to depth and are to scale. Sections 37 feet to 95 feet have been telescoped because of the intense alteration.

Examination of the drill log reveals several important facts.

- The lithology varies significantly throughout the column. Evidence of cumulates.
- There is about 30% talc throughout. Evidence of ultramafics.
- There is carbonate veining (dolomite). Evidence of advanced carbonitization.
- Pyrite is a very good indicator for gold because sulphur compounds are believed to complex with and transport gold in hydrothermal systems.
- The very fine grained, light green mica is probably chrome muscovite.
- Massive rock (silicification?) interleaved with talc, chlorite schists, chlorite talc schists, chrome muscovite and pyrite is by definition a listwanite.
- Quartz veins are absent. Perhaps the massive rock is highly silicified gabbros?

Orthogonal projection of the drill core to the surface places this alteration zone on the north shore of the wetlands as indicated on Map #5. If the sulphide zone is at the surface, a Beep Map may detect them. If exposed, there may be a gossan.



Ontario

Ministry of  
Natural  
ResourcesDiamond  
Drilling  
LogFill in on  
every pageHole No.  
85-2Page No.  
1

Drilling Company EASTERN ONTARIO DIAMOND DRILLING		Collar Elevation	Bearing of hole from true North S 30° E	Total Footage 270	Dip of Hole at Collar 40	Location of hole in relation to fixed point on the claim.  747954 OH#2 +60' 500' 2	Map Reference No.	Claim No. E O. 747954			
Date Hole Started SEPT. 16, 1985	Date Completed SEPT. 20, 1985	Date Logged OCT. 19/85	Logged by U. KRETSCHMAR		FL		Location (Twp., Lot, Con. or Lat. and Long.) N.E. 1/4 LOT. 5, CON. VI ELZEVIR TWP				
Exploration Co., Owner or Optionee BILL BUSH SHARBOT LK. CNT.		Date Submitted DEC 30/85	Submitted by (Signature) <i>James L. Byer</i>		FL		Property Name HAY LOFT				
Footage		Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.	Planar Feature Angle *	Core Specimen Footage †	Your Sample No.	Sample Footage		Sample Length	Assays †	
From	To						From	To			
0	2		collar								
2	20		broken core moderately magnetic chlorite schist & hornblende porphyroblastic chlorite tremolite schist minor carbonate alteration, weakly magnetic								
20	29		predominantly grevish green argillaceous chloritic rock probable meta-andesite minor pyrite veins perpendicular to core								
29	33		dolomitic carbonate alteration minor hornblende								
33	37		mixed carbonate and altered hornblende porphyroblastic amphibolite, probably metagabbro								
37	95		hornblende amphibolite, minor talc zones up to 1 ft. thick, massive to slightly foliated foliation at 45 to core, talc interstitial up to 30% pyrite veins 1 cm thick at 68, 72, 93 ft. minor carbonate veining, up to 3 in. thick at 59 ft. minor light green, v.f.g. chloritic mineral as veins & associated with pyrite								
95	100		gradational contact to talcose rock								
100	155		talc zone, talc-chlorite about 30%, less magnetic than amphibolite  foliation up to 50-70 to core minor hornblende porphyroblastic sections weakly magnetic minor pyrite veining light grayish green colour								



**Appendix C: Photos 1 to 5**

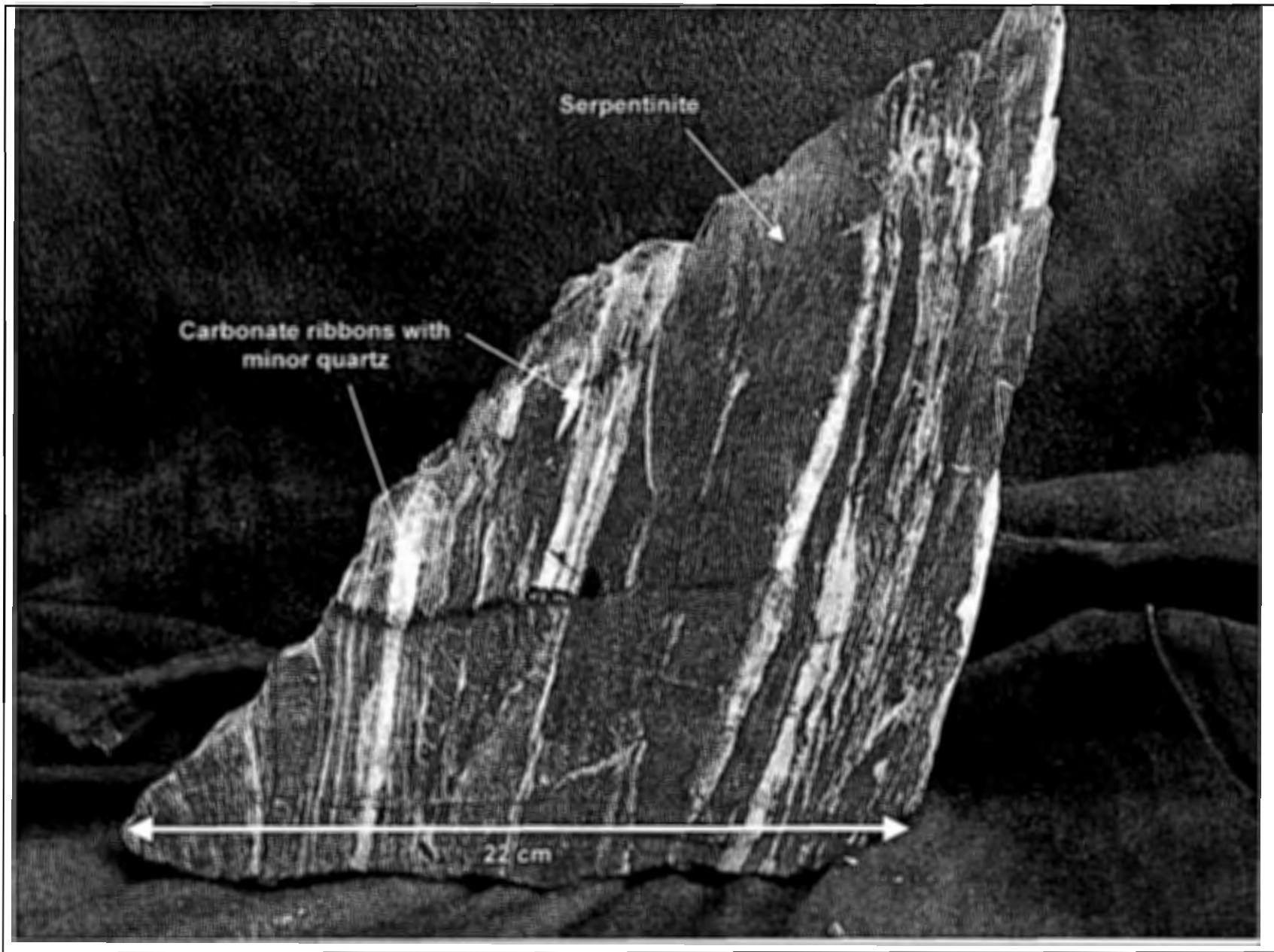


Photo 1: Test quarry looking north

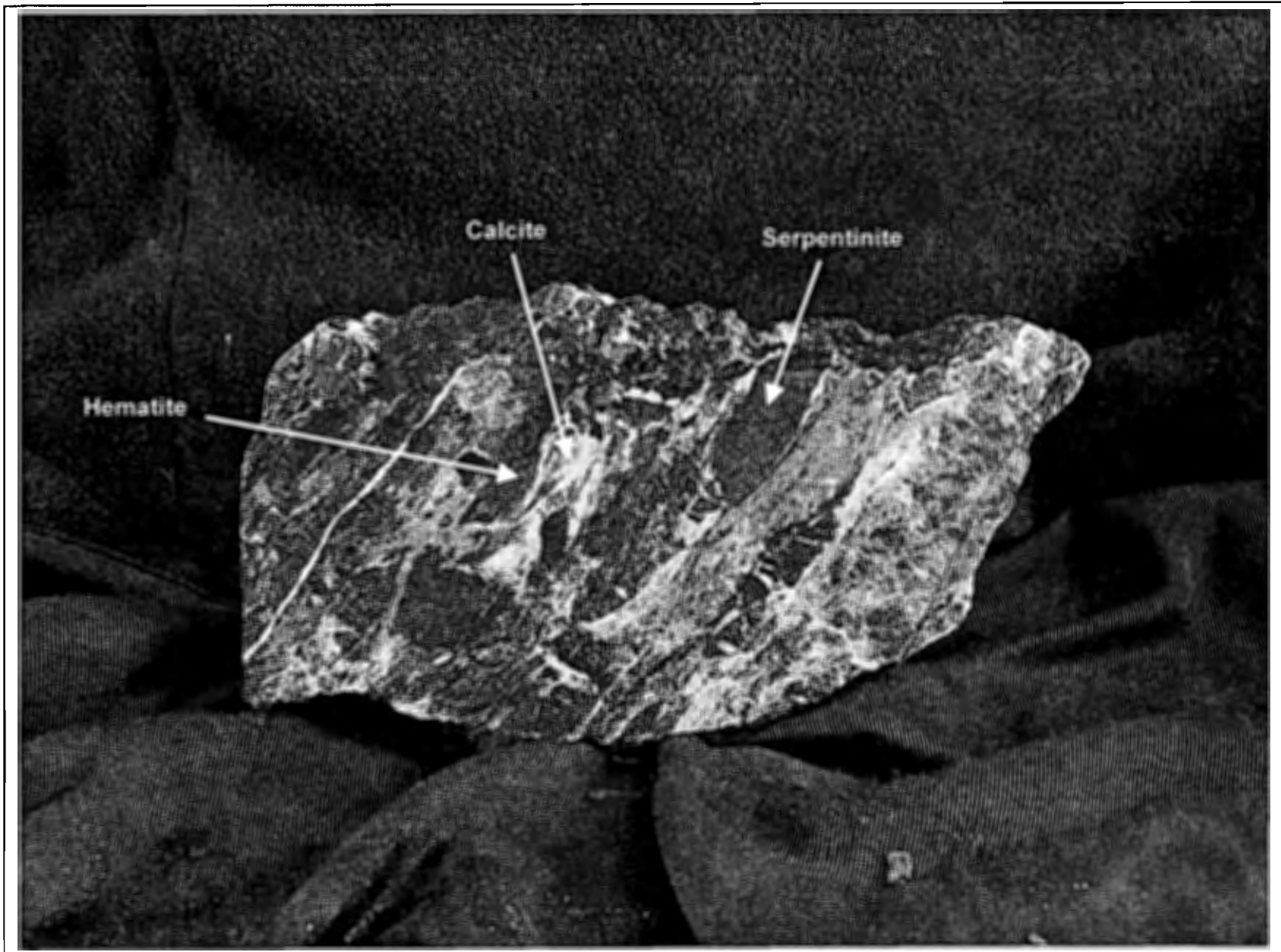




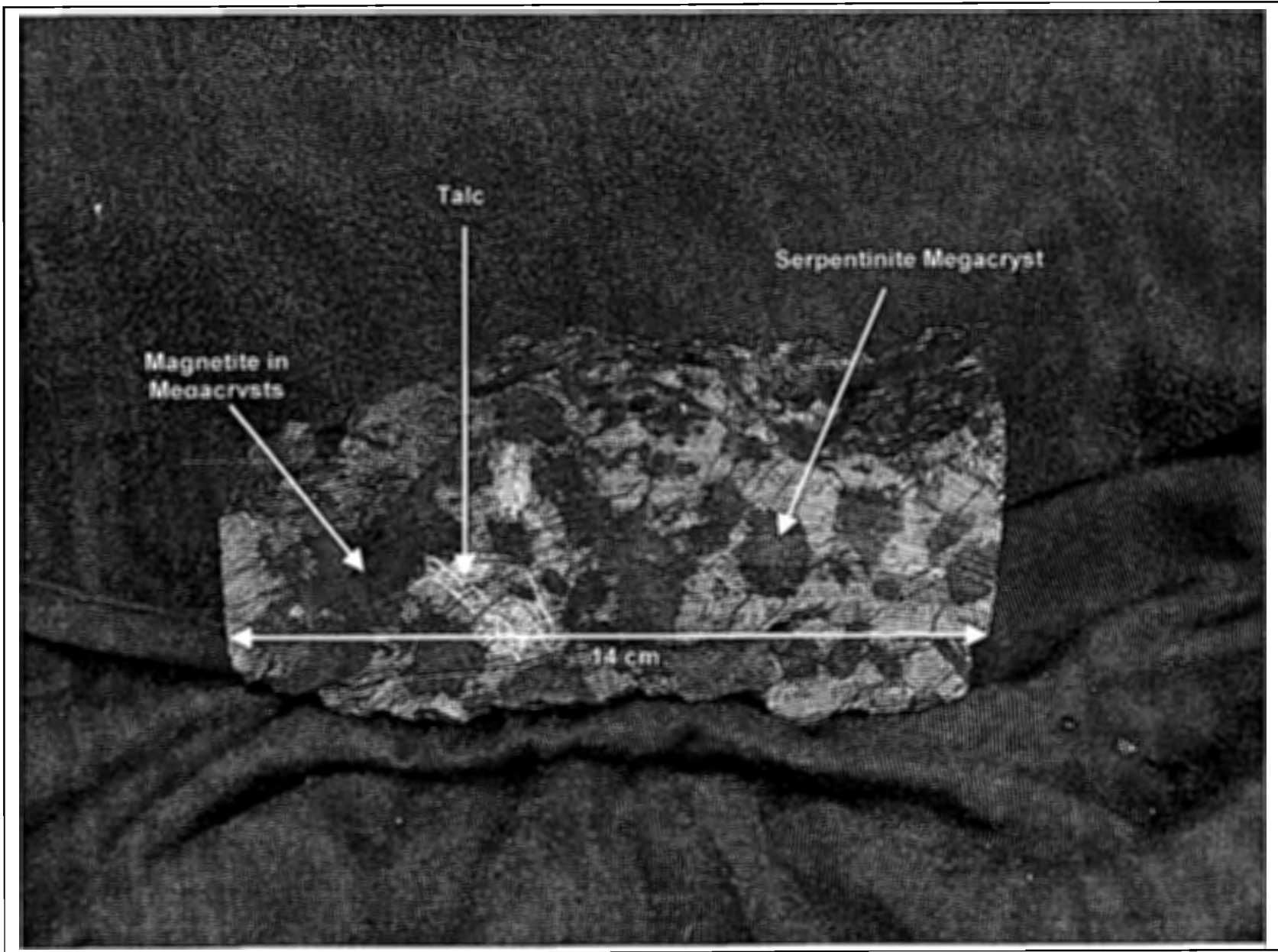
Photo 2: Test quarry looking east



**Photo 3: Calcite Serpentinite Ribbon Vein Material  
(Listwanite)**



**Photo 4: Calcite Serpentinite Breccia (Listwanite)  
Sample C166**



**Photo 5: Serpentinite Megacrysts in Carbonate Talc Matrix  
Sample A112**



## Certificate of Analysis

Work Order: TO113343

To: **COD SGS Minerals**  
C/O P.O. Box 439  
Whiffen Head Road  
ARNOLD COVE  
NF A0B 1A0

Date: Mar 08, 2011

P.O. No. : OEC 2010-004  
Project No. : -  
No. Of Samples : 67  
Date Submitted : Dec 17, 2010  
Report Comprises : Pages 1 to 5  
(Inclusive of Cover Sheet)

**Distribution of unused material:**

Discard after 90 days:

**Comments:**

XRF analysis was performed at the SGS Lakefield site

Certified By :

Gavin McGill  
Operations Manager

**SGS Minerals Services (Toronto) is accredited by Standards Council of Canada (SCC) and conforms to the requirements of ISO/IEC 17025 for specific tests as indicated on the scope of accreditation to be found at <http://www.scc.ca/en/programs/lab/mineral.shtml>**

Report Footer: L.N.R. = Listed not received I.S. = Insufficient Sample  
n.a. = Not applicable -- = No result  
\*INF = Composition of this sample makes detection impossible by this method  
M after a result denotes ppb to ppm conversion, % denotes ppm to % conversion  
Methods marked with an asterisk (e.g. \*NAA08V) were subcontracted  
Methods marked with the @ symbol (e.g. @AAS21E) denote accredited tests

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Element	WtKg	Au	Pt	Pd	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O
Method	WGH79	FAI323	FAI323	FAI323	XRF76C	XRF76C	XRF76C	XRF76C	XRF76C	XRF76C
Det.Lim.	0.001	5	10	5	0.01	0.01	0.01	0.01	0.01	0.01
Units	kg	ppb	ppb	ppb	%	%	%	%	%	%
A100	0.798	<5	<10	9	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A101	0.710	14	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A102	0.746	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A103	0.790	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A104	0.902	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A105	0.850	<5	<10	9	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A106	1.018	<5	<10	6	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A107	0.542	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A108	0.696	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A109	1.346	<5	<10	6	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A110	1.030	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A111	0.490	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A112	0.864	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A113	0.888	<5	<10	10	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A114	0.910	10	10	9	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A115	0.818	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A116	0.868	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A117	1.598	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A118	0.820	<5	10	9	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A119	1.154	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A140	0.740	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A141	0.484	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A142	0.536	<5	<10	7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A143	0.670	<5	<10	10	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A144	0.762	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A145	0.514	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B145	0.832	12	<10	6	46.7	8.48	9.18	17.5	12.0	1.09
B146	0.886	20	<10	<5	38.5	9.14	11.5	18.8	10.7	0.61
B147	0.656	<5	<10	5	49.1	1.94	5.36	26.0	5.74	0.07
B148	0.714	<5	<10	<5	42.4	6.94	7.28	24.6	5.50	0.06
B149	0.748	<5	<10	<5	44.1	12.2	9.56	18.0	10.1	1.25
B150	0.906	<5	<10	<5	44.6	0.68	4.33	22.7	10.6	0.06
B151	0.988	<5	<10	<5	44.2	14.5	7.03	12.9	12.1	1.07
B152	0.714	<5	<10	<5	44.4	6.83	8.96	16.7	14.2	0.75
B153	0.502	<5	<10	<5	31.9	17.2	7.79	30.9	0.44	0.06
B154	0.808	<5	<10	7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A155	0.464	<5	<10	7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B156	0.456	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B157	0.694	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B158	0.504	6	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
C159	0.578	<5	<10	<5	42.1	9.05	11.0	22.5	7.39	0.48
C160	0.506	<5	<10	<5	41.8	7.22	10.5	20.5	10.3	0.50
C161	0.636	<5	<10	<5	43.3	5.00	10.5	21.4	11.3	0.34

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Element Method Det.Lim. Units	WtKg WGH79 0.001 kg	Au FAI323 5 ppb	Pt FAI323 10 ppb	Pd FAI323 5 ppb	SiO2 XRF76C 0.01 %	Al2O3 XRF76C 0.01 %	Fe2O3 XRF76C 0.01 %	MgO XRF76C 0.01 %	CaO XRF76C 0.01 %	Na2O XRF76C 0.01 %
C162	0.462	<5	<10	<5	45.1	5.06	10.4	21.9	10.2	0.39
C163	0.618	<5	<10	<5	46.0	3.70	9.93	23.2	10.2	0.20
C164	0.794	<5	<10	<5	44.1	5.93	9.56	23.6	8.86	0.24
C165	0.856	<5	<10	<5	27.2	3.26	6.88	19.7	21.0	0.13
C166	1.232	<5	10	12	30.4	3.28	10.8	19.5	18.3	0.18
C167	1.094	<5	<10	9	39.5	5.81	9.69	22.1	11.3	0.27
C168	0.538	<5	<10	<5	37.4	8.47	11.7	24.6	7.78	0.12
C169	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
A240	0.616	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A241	0.608	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A242	0.888	<5	<10	7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A243	0.646	<5	<10	6	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A244	0.638	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A245	0.568	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B245	0.498	25	<10	9	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B246	0.744	6	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B247	0.368	<5	<10	7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B248	0.676	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B249	0.664	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B250	0.524	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B251	0.820	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B252	0.448	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B253	0.386	<5	<10	<5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
*Rep A114		16	10	8						
*Rep B154		<5	<10	9						
D169	1.186	<5	<10	<5	47.9	17.1	6.01	12.2	12.0	2.47
*Rep D169		<5	<10	<5						
*Rep D169		<5	<10	<5						

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Final : TO113343 Order: OEC 2010-004

Element Method Det.Lim. Units	K2O XRF76C 0.01 %	TiO2 XRF76C 0.01 %	P2O5 XRF76C 0.01 %	MnO XRF76C 0.01 %	Cr2O3 XRF76C 0.01 %	LOI XRF76C 0.01 %	SUM XRF76C 0.01 %
A100	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A101	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A102	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A103	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A104	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A105	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A106	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A107	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A108	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A109	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A110	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A111	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A112	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A113	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A114	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A115	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A116	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A117	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A118	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A119	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A140	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A141	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A142	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A143	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A144	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A145	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B145	0.13	0.65	0.02	0.13	0.42	3.18	99.5
B146	0.06	2.19	0.29	0.16	0.26	8.00	100.1
B147	<0.01	0.06	<0.01	0.06	0.69	11.3	100.3
B148	<0.01	1.54	0.19	0.09	0.29	11.3	100.2
B149	0.19	0.62	0.07	0.11	0.29	2.96	99.5
B150	<0.01	0.01	<0.01	0.10	0.30	16.7	100.1
B151	1.88	0.41	0.03	0.12	0.14	5.28	99.6
B152	0.10	0.85	0.07	0.17	0.27	5.92	99.2
B153	0.01	0.27	<0.01	0.02	0.10	11.9	100.6
B154	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A155	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B156	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B157	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B158	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
C159	0.06	0.43	0.03	0.14	0.34	6.51	100.2
C160	0.06	0.51	0.03	0.15	0.38	7.99	100.1
C161	0.04	0.66	0.02	0.16	0.45	7.08	100.3

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Final : TO113343 Order: OEC 2010-004

Element	K2O	TiO2	P2O5	MnO	Cr2O3	LOI	SUM
Method	XRF76C	XRF76C	XRF76C	XRF76C	XRF76C	XRF76C	XRF76C
Det.Lim.	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Units	%	%	%	%	%	%	%
C162	0.04	0.75	0.02	0.13	0.45	5.53	100.1
C163	0.02	0.48	0.03	0.14	0.37	5.92	100.2
C164	0.03	0.39	0.03	0.13	0.38	6.54	99.8
C165	<0.01	0.28	0.03	0.20	0.26	21.3	100.3
C166	0.01	0.31	0.01	0.26	0.46	16.9	100.4
C167	0.03	0.37	0.04	0.15	0.45	10.3	100.1
C168	0.01	0.19	<0.01	0.11	0.37	10.1	101.0
C169	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
A240	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A241	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A242	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A243	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A244	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
A245	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B245	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B246	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B247	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B248	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B249	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B250	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B251	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B252	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
B253	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
D169	0.84	0.18	<0.01	0.09	0.12	1.38	100.3

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## Certificate of Analysis

Work Order: TO113340

To: **COD SGS Minerals**  
C/O P.O. Box 439  
Whiffen Head Road  
ARNOLD COVE  
NF A0B 1A0

Date: Feb 11, 2011

P.O. No. : OEC 2010-004  
Project No. : -  
No. Of Samples : 32  
Date Submitted : Dec 17, 2010  
Report Comprises : Pages 1 to 2  
(Inclusive of Cover Sheet)

**Distribution of unused material:**

Discard after 90 days:

Certified By :

Gavin McGill  
Operations Manager

**SGS Minerals Services (Toronto) is accredited by Standards Council of Canada (SCC) and conforms to the requirements of ISO/IEC 17025 for specific tests as indicated on the scope of accreditation to be found at <http://www.scc.ca/en/programs/lab/mineral.shtml>**

---

Report Footer: L.N.R. = Listed not received I.S. = Insufficient Sample  
n.a. = Not applicable -- = No result

\*INF = Composition of this sample makes detection impossible by this method  
M after a result denotes ppb to ppm conversion, % denotes ppm to % conversion  
Methods marked with an asterisk (e.g. \*NAA08V) were subcontracted  
Methods marked with the @ symbol (e.g. @AAS21E) denote accredited tests

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Final : TO113340 Order: OEC 2010-004

Element Method Det.Lim. Units	Au	Pt	Pd
	FAI323 5 ppb	FAI323 10 ppb	FAI323 5 ppb
P000	<5	<10	<5
P001	<5	<10	<5
P002	<5	<10	<5
P003	<5	<10	33
P004	<5	<10	<5
P005	<5	<10	5
P006	<5	<10	<5
P007	<5	<10	<5
P008	<5	10	<5
P009	<5	<10	<5
P010	<5	<10	<5
P011	<5	<10	<5
P012	<5	<10	<5
P013	37	<10	<5
P014	<5	30	<5
P015	9	<10	<5
P016	<5	<10	<5
P017	<5	<10	<5
P018	11	<10	19
P019	<5	<10	5
P020	10	<10	<5
P021	<5	<10	<5
P022	<5	<10	<5
P023	<5	<10	<5
P024	<5	<10	<5
P025	<5	<10	<5
P026	<5	<10	<5
P027	<5	<10	<5
P028	<5	<10	<5
P029	<5	<10	<5
P030	<5	<10	<5
P031	6	20	8
*Rep P015	<5	<10	<5

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## Certificate of Analysis

Work Order: TO113342

To: **COD SGS Minerals**  
C/O P.O. Box 439  
Whiffen Head Road  
ARNOLD COVE  
NF AOB 1A0

Date: Feb 17, 2011

P.O. No. : OEC 2010-004  
Project No. : -  
No. Of Samples : 62  
Date Submitted : Dec 17, 2010  
Report Comprises : Pages 1 to 3  
(Inclusive of Cover Sheet)

**Distribution of unused material:**

Discard after 90 days:

Certified By :

Gavin McGill  
Operations Manager

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n.a. = Not applicable -- = No result  
\*INF = Composition of this sample makes detection impossible by this method  
M after a result denotes ppb to ppm conversion, % denotes ppm to % conversion  
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Final : TO113342 Order: OEC 2010-004

Element	WtKg	Au	Pt	Pd
Method	WGH79	FAI323	FAI323	FAI323
Det.Lim.	0.001	5	10	5
Units	kg	ppb	ppb	ppb
B254	0.702	<5	10	5
B255	0.398	<5	<10	8
B256	0.406	<5	<10	<5
B257	0.678	57	<10	<5
B258	0.626	8	<10	<5
C259	0.486	<5	<10	<5
C260	0.556	<5	<10	<5
C261	0.440	<5	<10	<5
C262	0.466	<5	<10	<5
C263	0.512	<5	<10	<5
C264	0.396	<5	<10	<5
C265	0.522	<5	<10	<5
C266	0.922	<5	10	10
C267	1.068	<5	<10	<5
C268	0.572	<5	<10	<5
C269	0.622	<5	<10	<5
A120	0.926	<5	<10	<5
A121	1.008	<5	<10	5
A122	1.494	<5	<10	<5
A123	1.018	<5	<10	<5
A124	0.818	<5	<10	<5
A125	0.818	<5	<10	<5
A126	1.004	<5	<10	<5
A127	0.984	<5	<10	<5
A128	0.680	<5	<10	<5
A130	0.890	<5	<10	<5
B129	0.916	<5	<10	<5
B131	1.244	<5	<10	<5
B132	1.258	<5	<10	<5
B133	1.502	<5	<10	<5
B134	1.032	<5	<10	<5
B135	0.656	<5	<10	<5
B136	1.238	15	<10	<5
B137	1.772	<5	<10	<5
B138	0.850	<5	<10	<5
B139	1.478	6	<10	<5
C270	0.840	<5	<10	<5
C271	0.440	<5	<10	<5
C272	0.366	<5	<10	<5
C273	0.606	<5	10	14
C274	1.050	<5	<10	<5
C275	0.366	<5	<10	9
C276	0.610	<5	<10	<5

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Final : TO113342 Order: OEC 2010-004

Element Method Det.Lim. Units	VtKg WGH79 0.001 kg	Au FAI323 5 ppb	Pt FAI323 10 ppb	Pd FAI323 5 ppb
D277	0.302	<5	<10	<5
D278	0.664	<5	<10	<5
D279	0.550	<5	<10	15
D280	0.700	<5	<10	<5
D281	0.812	<5	<10	11
A282	0.820	<5	<10	<5
C170	0.866	<5	<10	<5
C171	0.424	<5	<10	7
C172	0.374	<5	<10	<5
C173	0.838	<5	20	24
C174	0.866	<5	<10	7
C175	0.602	<5	<10	7
C176	0.878	<5	<10	<5
D177	0.386	<5	<10	<5
D178	0.838	<5	<10	<5
D179	0.488	<5	<10	13
D180	0.880	<5	<10	<5
D181	0.748	<5	<10	<5
A182	0.876	<5	<10	<5
*Rep C268		<5	<10	<5
*Rep D280		<5	<10	<5

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Friday, December 17, 2010

Diane Milligan  
Queensborough Complex Project OEC 2010-004  
#3 - 130 Marlbank Road  
Box 9  
Tweed, Ontario  
K0K 3J0

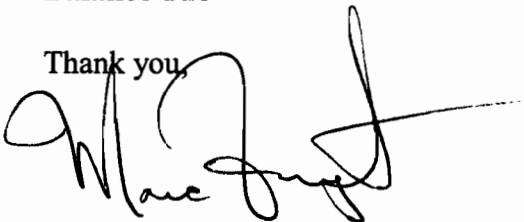
Diane:

Thank you for the opportunity to manage and execute the field work for OEC Project 2010-004 (Queensborough Complex Project). The soil samples have been dried and prepped along with the rock samples: they are ready to be shipped to SGS Toronto. Gary Clark, in the absence of the project technical reviewer, has approved the changes to the project (attached). After I get the lab results, I will complete and submit the OEC technical report.

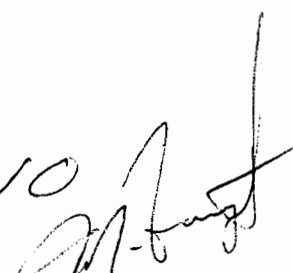
I am submitting my labour costs and invoices for saw rental and consumable costs. Please make payment to Marc Forget regarding OEC 2010-004. The cost for report writing (\$900.00) is not due until after the OEC approves the final report and makes the final payment to you.

<u>QTY</u>	<u>Description</u>	<u>Cost</u>	<u>Price</u>
7	Days sampling, recording & Mapping	\$300/day	\$2,100.00
2	Weeks rock saw rental (Drummond BMR)	\$248.60/week	\$ 497.20
1	Six pack of shipping boxes (Staples)	\$18.84	\$ 18.84
1	Prospecting Supplies (Commercial Solutions)	\$108.11	\$ 108.11
7	Days travel (85 km/day @ \$0.50/km)	\$42.50	<u>\$ 297.50</u>
<b>Balance due</b>		<b>TOTAL</b>	<b>\$3,021.65</b>

Thank you,



Marc Forget

*pd. In Full  
Chg # 014  
Dec 17, 2010*  


March 10, 2011

Diane Milligan  
Queensborough Complex Project OEC 2010-004  
#3-130 Marlbank Road  
Tweed, Ontario  
K0K 3J0

Diane:

The first phase of the project is complete. Enclosed are two copies of the final report for submittal to the Ontario Exploration Corporation and the Assessment Office of the Ministry of Northern Development, Mines and Forests.

The project went very smoothly and your help in the field was invaluable. Several areas of the property warrant further exploration:

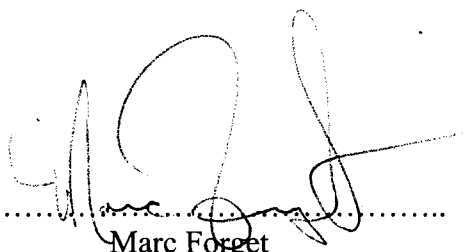
- 1) The soapstone quarry should be carefully explored to the immediate north and north east for additional carving and industrial materials by trenching, stripping and drilling, and
- 2) The area around the two old talc pits/trenches in the north east of the property should be explored for Au-PGE potential using soil and rock geochemistry, and
- 3) The northwest of the property has highly carbonatized ultramafic rocks and should be prospected for talc bearing horizons.

I have already submitted my labour cost for the report writing. The amount of \$900 has been received Thank you.

Thank you,

Marc Forget

Received from Diane Milligan ..... \$900.00.....



Marc Forget

March 10, 2011





# INVOICE

Invoice Number : 10486507  
 Date : 10-MAR-11  
 Page : 1 / 2

COD SGS MINERALS  
 COD - HST, P O BOX 439  
 WHIFFEN HEAD ROAD  
 ARNOLD COVE NF A0B 1A0  
 Canada

Customer Number 272831  
 Currency CAD  
 Payment Term Due immediately  
 Due Date 10-MAR-11  
 SGS Order No. 399479

Customer Reference Attn: Diane Milligan  
 Queensborough Complex Project OEC 2010-004  
 #3 - 130 Marlbank Road  
 Box 9  
 Tweed, ON K0K 3J0

# PAID

2/02/11 VISA \$ 4,100-  
 2/04/11 BMO 1,245.80  
 Regime H  
 016  
 \$ 5,345.80

Order source reference number: 0000023528  
 WO#:TO113343: OEC 2010-004

Item	Description	Quantity	UoM	Unit Price	Net Amount	Amount	
37351	Sample Preparation DRY10 Dry samples, <3kg, 105 C	32	Ea	2.15	68.80	77.74	
37351	Sample Preparation SCR30 Screen soils or stream sediments to -80mesh, <2kg	32	Ea	3.80	121.60	137.41	
37366	Routine Analysis by Fire Assay FAI323 Gold, platinum and palladium by fire assay lead collection Certificate(s) / Report(s) No(s): OEC 2010-004 WO#TO113340	32	Ea	15.95	510.40	576.75	
37351	Sample Preparation PRP89 Dry, crush to 75%, split to 250g and pulverize to 85%	62	Ea	8.15	505.30	570.99	
37351	Sample Preparation WGH79 Sample Weight, Reporting of weights	62	Ea	1.15	71.30	80.57	
37366	Routine Analysis by Fire Assay FAI323 Gold, platinum and palladium by fire assay lead collection Certificate(s) / Report(s) No(s): OEC 2010-004 WO#TO113342	62	Ea	15.95	988.90	1,117.46	
37351	Sample Preparation PRP89 Dry, crush to 75%, split to 250g and pulverize to 85%	66	Ea	8.15	537.90	607.83	
37351	Sample Preparation WGH79 Sample Weight, Reporting of weights	66	Ea	1.15	75.90	85.77	
37366	Routine Analysis by Fire Assay FAI323 Gold, platinum and palladium by fire assay lead collection	66	Ea	15.95	1,052.70	1,189.55	
37352	Whole Rock Analysis XRF76C Borate Fusion, XRF, Major Elements Certificate(s) / Report(s) No(s): OEC 2010-004 WO#TO113343	20	Ea	39.90	798.00	901.74	
						HST	615.01
						Net Amount CAD	4,730.80
						Sum of Tax CAD	615.01
						<b>Total Amount CAD</b>	<b>5,345.81</b>

Contact Name: LEE, MA LYRA  
 Direct line: 416-445-5755 ext 3223  
 E-mail: Ma.LyraLee@sgs.com

Please Remit To:  
 SGS Canada Inc  
 WIRE TRANSFERS:  
 Citibank NA Canadian Branch - Toronto, ON

SGS Canada Inc. | Mineral Services 1885 Leslie Street Toronto, ON, M3B 2M3 Canada  
 t: (416) 445-5755 f: (416) 445-4152

SGS Tax ID GST/HST/TPS#R105082572 QST/TVQ#R1010505000 Member of the SGS Group

All orders are accepted and all reports and certificates are issued subject to the SGS General Conditions of Service for North America (copy available upon request or may be viewed at <http://www.sgs.com>) or as otherwise agreed upon. Any liability, including the customer, using or relying on this certificate or report, agrees that the liability of the contracting SGS affiliate shall in no case exceed a total aggregate sum of the lesser of US \$20,000 or ten times the fee paid or payable for the service giving rise to the claim, but in no event in excess of the extent of the proven negligence of the contracting SGS affiliate. The results shown on this test or inspection report refer only to the sample(s) tested or inspected unless otherwise stated.



# INVOICE

Invoice Number : 10486507  
Date : 10-MAR-11  
Page : 2 / 2

COD SGS MINERALS  
COD - HST, P O BOX 439  
WHIFFEN HEAD ROAD  
ARNOLD COVE NF A0B 1A0  
Canada

Customer Number 272831  
Currency CAD  
Payment Term Due immediately  
Due Date 10-MAR-11  
SGS Order No. 399479

BANK# 328 TRANSIT# 20012  
SWIFT: CITICATBCH  
CAD2014113008 USD2014113016

PLEASE INCLUDE INVOICE NUMBER WITH PAYMENT DETAIL

FOR CHEQUE PAYMENTS:  
PO BOX 4580  
DEPT 5, STATION A

Toronto M5W 4W2  
Canada

SGS Canada Inc. | Mineral Services 1885 Leslie Street Toronto, ON, M3B 2M3 Canada  
t: (416) 445-5755 f: (416) 445-4152

SGS Tax ID GST/HST/TPS#R105082572 QST/TVQ#R1010505000 Member of the SGS Group

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COMMERCIAL SOLUTIONS  
 4175 - 95 STREET  
 Edmonton, AB T6E 5R6  
 (780)439-2026 FAX (780)433-5176

992203 HOU 992203 HOU PG 1 OF 1

CASH - (JOBBER) AB, MB, NWT, NVT

FRONTENAC EXPLORATION  
 C/O MARK FORGET  
 8 NORTH HASTINGS AVE  
 MARMORA ONT. KOK 2MO, 613 4720406

VISA INVOICE

SOUTH SIDE (780)439-2026

GST Number  
 R101066637

001-506706

10/20/10 MMI 10/20/10 506706 MARC LOOMIS/DHL PCO

\*\*\*\*\*  
 SRCE(P/F/E/C/S):P ORDERED BY:MARC FORGET PH:613-472-0406  
 CUSTOMER REQUIRED DATE: (10/20/2010) ENTERED BY:MMCLEOD  
 \*\*\*\*\*

12	12	JFC EK400-BLACK	PAINT MARKER, JIFFY, BLACK	TG	3.270	EA	39.24
			ARTLINE 400				
2	2	UPM 12803	BAG PLASTIC 10X15 5MIL P/1	TG	14.912	PKG	29.82
10	10	PSC CM1BG125-265	FLAG TAPE BLU GLO 1X125	TG	1.290	EA	12.90

THIS ORDER MUST SHIP TODAY BH DHL PREPAID AND CHG  
 CHARGE THIS ORDER TO VISA  
 SHIP TODAY DHL PREPAID AND CHG

1	1	COU TRANSPORT	TRANSPORT	TG	21.000	EA	21.00
			GOODS & SERVICES TAX (CODE G)		\$5.15		

\*\*\*\*\* Please remit all payments to 4203-95 St, Edm. AB T6E 5R6

Picked By \_\_\_\_\_ Shipped By \_\_\_\_\_ \*\*\*\*\*

VISA 108.11 \*\* CENTRAL \*\* 102.96 5.15

17:00 108.11

**DRUMMOND BMR**

90 MATTHEW ST HWY#7  
MARMORA, ON KOK 2M0  
1-613-472-2628 drummond@bellnet.ca

RENTAL QUICK CUT

SUBTOTAL  
RENTAL 440.00 t  
H.S.T. 57.20  
TOTAL 497.20

PAID BY: VISA CARD 497.20

11/05/10 10:36 SALE  
GST R101497923  
P- 27 W- 2 P- 1  
1.000 1 CASH 1315623

-----  
SALEABLE GOODS RETURNABLE IN 14DAYS-REST  
MUST HAVE RECEIPT-CALL 613-472-2628  
DRUMMOND BMR-BUILDING MATERIALS

TYPE: PURCHASE

ACCT: VISA \$ 497.20  
-----

CARD NUMBER: \*\*\*\*\*1135  
DATE/TIME : 10/11/05 10:36:01  
REFERENCE #: 56168426 0011790020 S  
AUTHOR. # : 067948

01/027 APPROVED - THANK YOU

X \_\_\_\_\_  
SIGNATURE

Cardholder will pay card issuer above  
amount pursuant to cardholder agreement

IMPORTANT: Retain this copy  
for your records

CUSTOMER COPY - 1315623

STAPLES Canada  
Store # 160  
109 Park St South  
Peterborough, ON K9J3R8  
705-741-1130

Sale 00007 3 001 97827  
0160 12/08/10 04:57

1 RECYCL BOX 6PK LL  
718103089319 16.68H  
Subtotal 16.68  
HST 13.00% 2.16  
Total \$18.84

Visa 18.84  
\*\*\*\*\*1135  
Visa S Purchase  
Authorization Number 018831  
0010011650 97827 66172967  
07 12/08/10 16:57:30  
01/027 APPROVED - THANK YOU

\*\*\*\*\*  
Thank you for shopping at  
STAPLES!  
We will not be undersold!  
\*\*\*\*\*

IMPORTANT  
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FOR CUSTOMER SERVICE CALL 1-866-STAPLES  
OR EMAIL TO customer\_service@staples.ca

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Visit Staples.ca

WARNING - DATA REMOVAL  
CUSTOMERS ARE RESPONSIBLE FOR THE  
REMOVAL AND BACK-UP OF ALL DATA  
(INCLUDING PERSONAL INFORMATION)  
FROM RETURNED PRODUCTS.

HST No. 126152586





CREIGHTON ROCK DRILL LIMITED  
 2222 Drew Road  
 Mississauga ON L5S 1B1  
 (905) 673-8200 Fax: (905) 673-8208

Invoice INV039348

Date 11/1/2010  
 Page 1

Bill To:

Lady Diamond Mine and Exploration  
 130 # 3 Marbank Road  
 Tweed ON K0K 3J0

Ship To:

Lady Diamond Mine and Exploration  
 130 # 3 Marbank Road  
 Tweed ON K0K 3J0

G.S.T. # R101200418 T.V.Q. #1014489114

65,589

Customer ID	Purchase Order No.	Salesperson ID	Shipping Method	Due Date	Req Ship Date	Order Number	
LAD002			DELIVERY	0/0/0000	10/29/2010	S040224	
Ordered	Shipped	B/C	U of M	Item Number	Description	Unit Price	Ext. Price
1	1	0	EA	D10058	C43AX 12" x .125" x 1" High Performance Blade	\$256.60	\$256.60

Please send confirmation of receiving cheque and Statement pd.

PAID IN Full

LADY DIAMOND MINING AND EXPLORATION  
 19 BRIDGE ST. E., P.O. BOX 95  
 TWEED, ONTARIO K0K 3J0

012

DATE 20101030  
 Y Y Y Y M M D D

PAY TO THE ORDER OF

Creighton Rock Drill

\$ 289.96

Two hundred eighty-nine 96/100 DOLLARS

100 DOLLARS

BMO Bank of Montreal  
 225 VICTORIA ST. N. TEL: (613) 478-2120  
 TWEED, ONT. K0K 3J0



Diane Mulligan

MEMO

Re - Saw Blade for testing

ial	\$256.60
	\$0.00
ST	\$33.36
	\$0.00
Freight	\$0.00
Trade Discount	\$0.00
<b>Total</b>	<b>\$289.96</b>

1:0402200011

10210378



CREIGHTON ROCK DRILL LIMITED  
 2222 Drew Road  
 Mississauga ON L5S 1B1  
 (905) 673-8200 Fax: (905) 673-8208

**Invoice INV039230**

Date 10/29/2010  
 Page 1

*EP*

**Bill To:**

Lady Diamond Mine and Exploration  
 130 # 3 Marlbank Road  
 Tweed ON K0K 3J0

**Ship To:**

Lady Diamond Mine and Exploration  
 130 # 3 Marlbank Road  
 Tweed ON K0K 3J0

G.S.T. # R101200418 T.V.Q. #1014489114

64,347

Customer ID	Purchase Order No.		Salesperson ID	Shipping Method	Due Date	Req Ship Date	Order Number
LAD002	DIANE			DELIVERY	0/0/0000	10/19/2010	S039702
Ordered	Shipped	B/O	U of M	Item Number	Description	Unit Price	Ext. Price
1	1	0	EA	D10058	C43AX 12" x .125" x 1" High Performance Blade	\$256.60	\$256.60

*PO # 011*

All prices, amounts, and totals are in CAD Dollars

Subtotal	\$256.60
Misc	\$0.00
GST/HST	\$33.36
PST	\$0.00
Freight	\$0.00
Trade Discount	\$0.00
<b>Total</b>	<b>\$289.96</b>

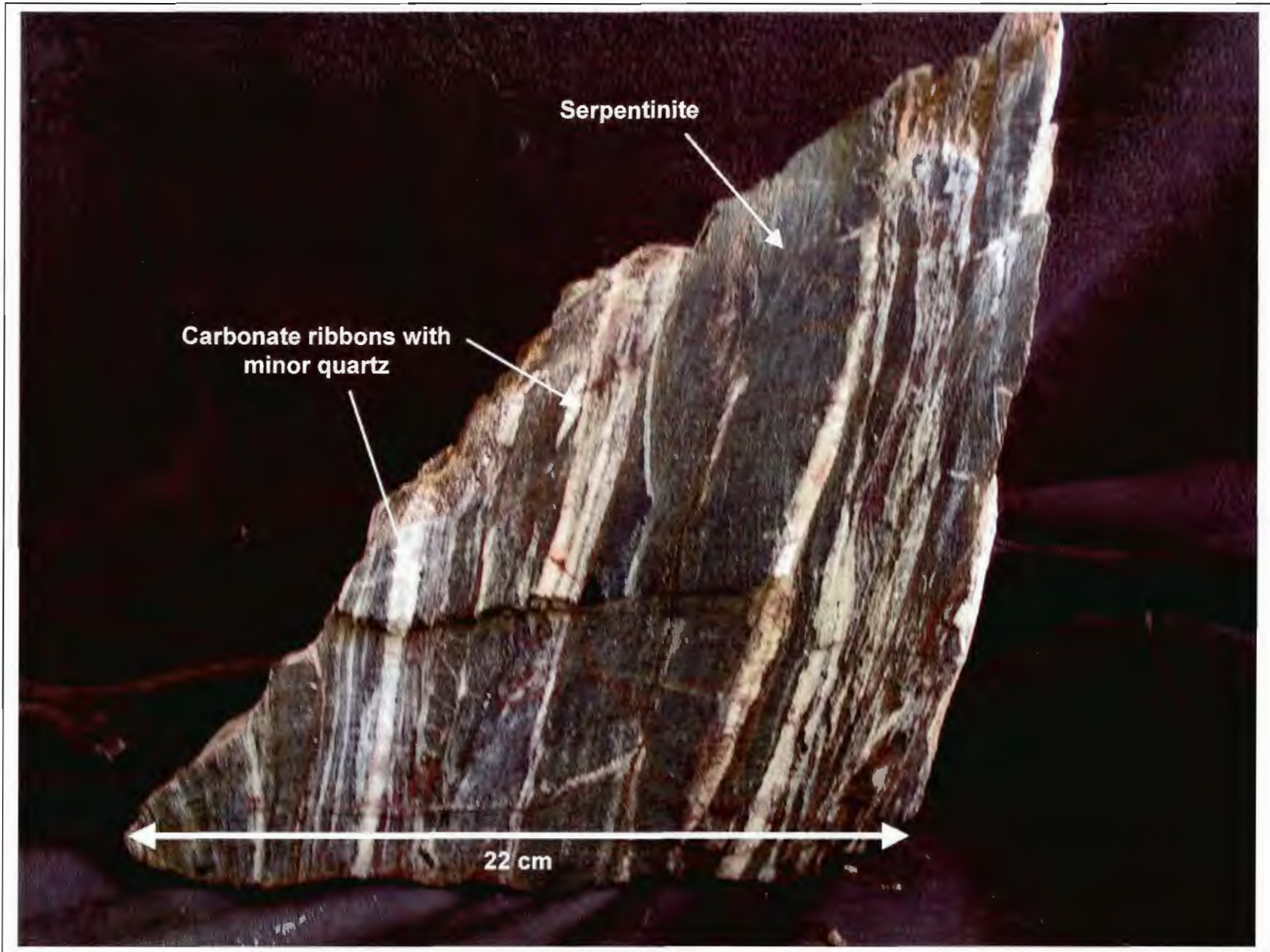


Photo 1: Test quarry looking north

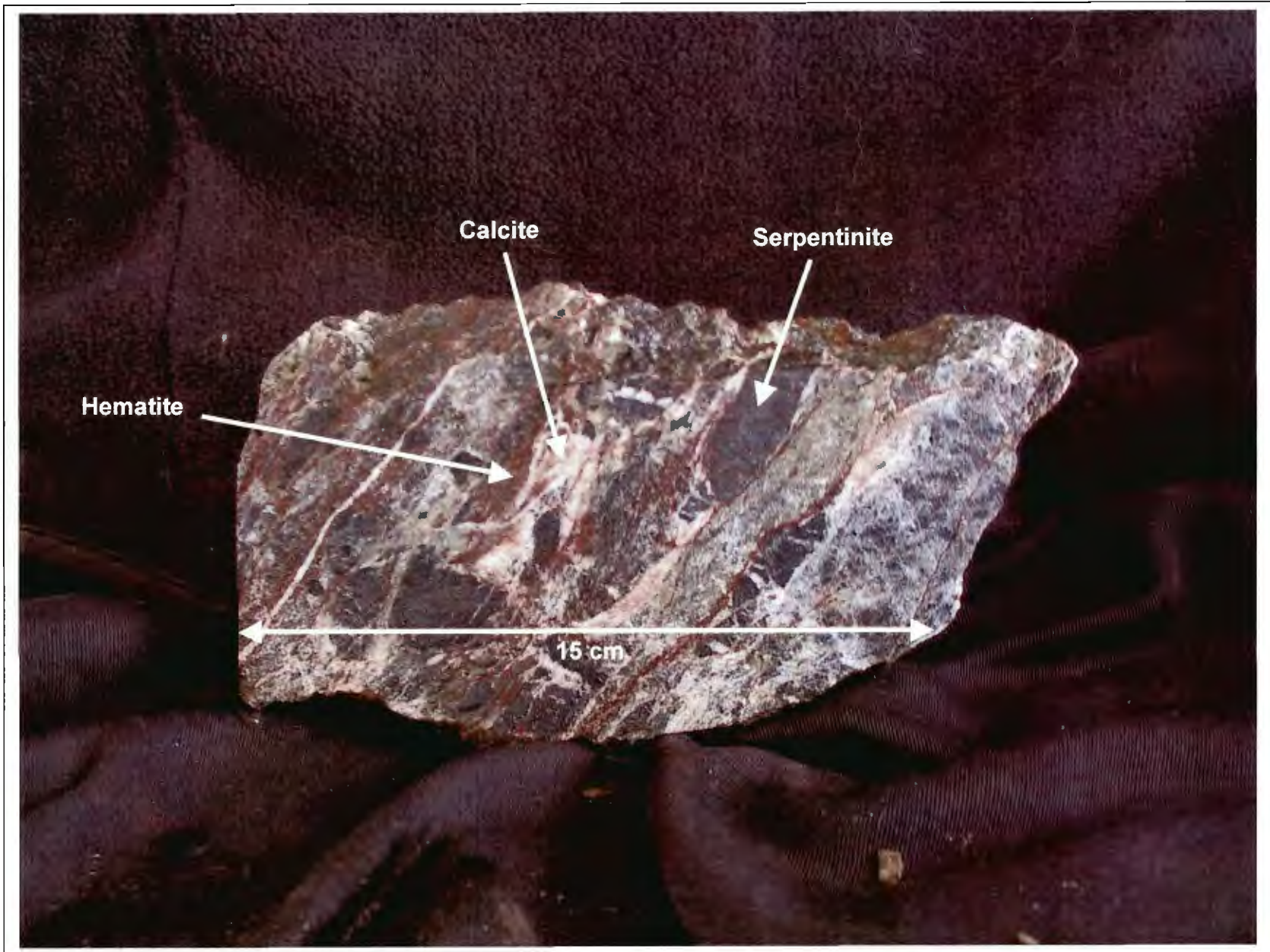


Photo 2: Test quarry looking east

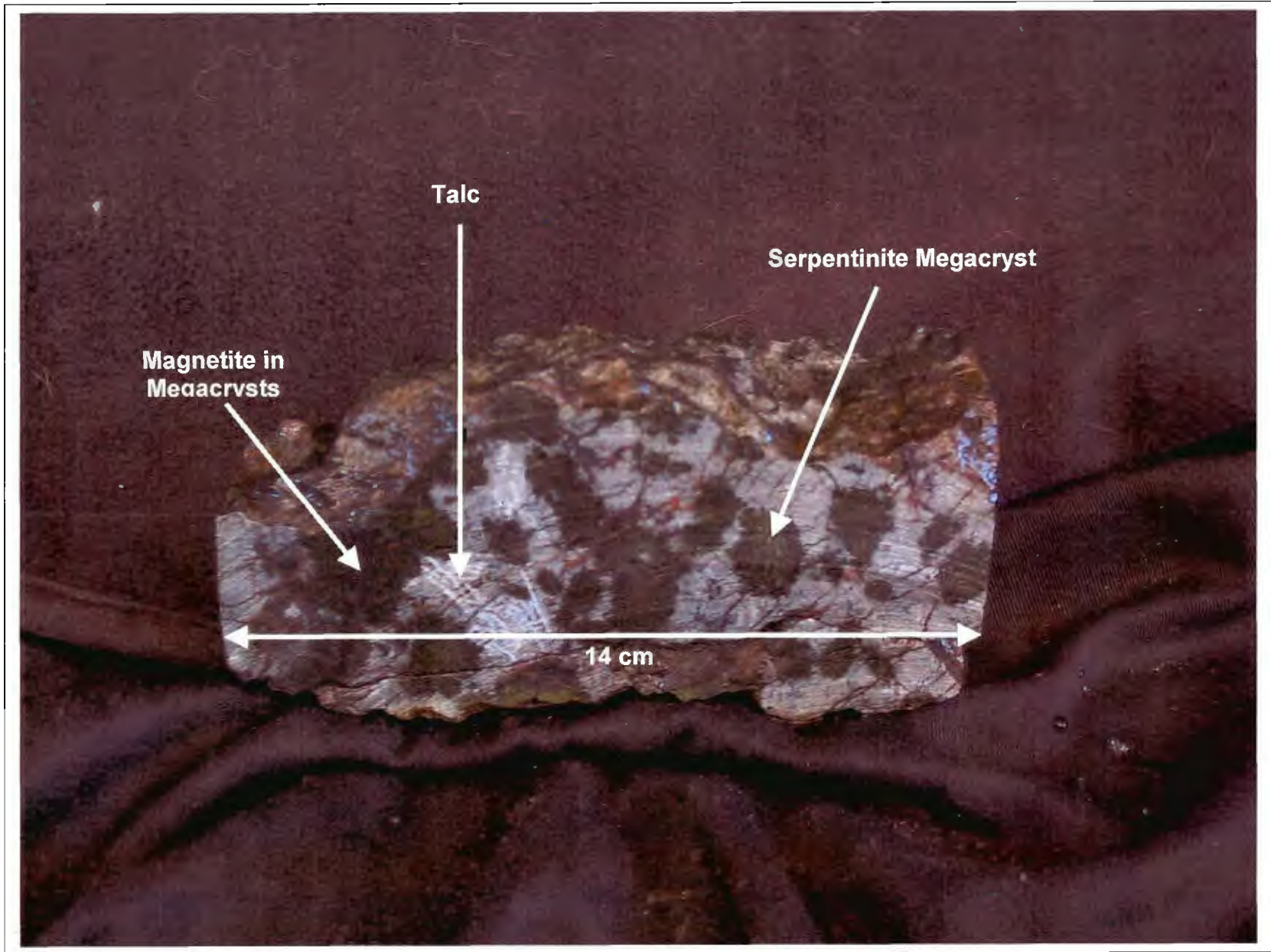




**Photo 3: Calcite Serpentinite Ribbon Vein Material  
(Listwanite)**



**Photo 4: Calcite Serpentinite Breccia (Listwanite)  
Sample C166**



**Photo 5: Serpentinite Megacrysts in Carbonate Talc Matrix  
Sample A112**