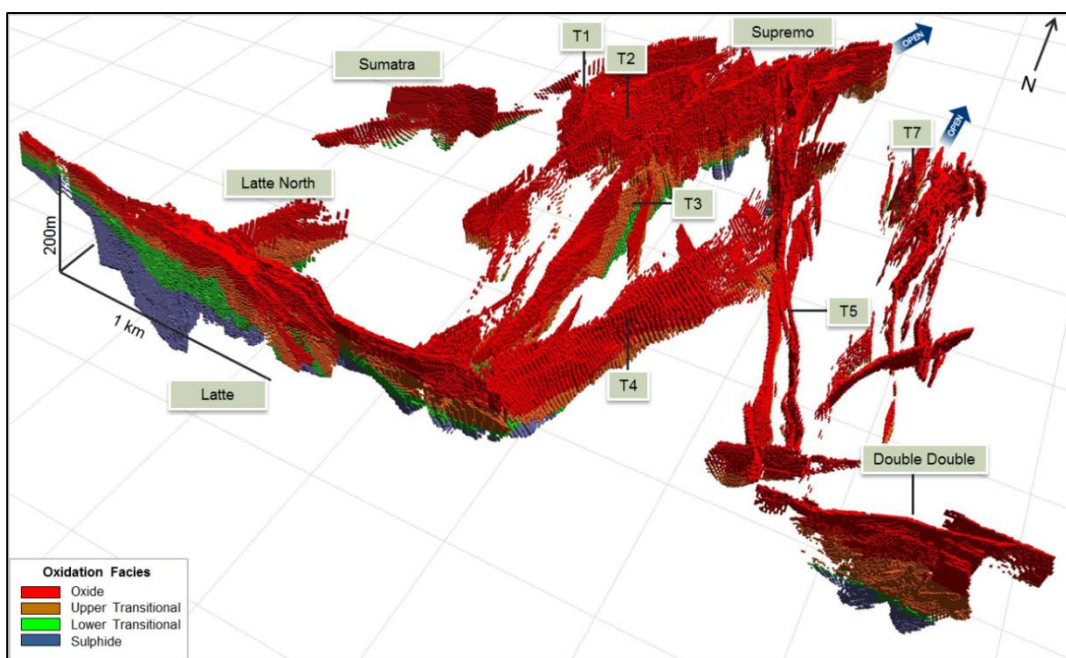




# Mineral Resource Evaluation, Coffee Gold Project, Yukon Territory, Canada



## Report Prepared by

SIM Geological Inc.  
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March 12, 2014

## Report Prepared for

**Kaminak Gold Corp.**



# **Mineral Resource Evaluation, Coffee Gold Project, Yukon, Canada**

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# Executive Summary

## Introduction

The Coffee gold project (Coffee project) is a resource development gold exploration project owned by Kaminak Gold Corp. (Kaminak) and located in the White Gold district of west-central Yukon, approximately 130 kilometres south of Dawson City. The project encloses several gold occurrences within an exploration concession covering an area of more than 600 square kilometres.

Three previous technical reports were prepared for the Coffee project pursuant to Canadian Securities Administrators' National Instrument 43-101 and Form 43-101F1 (collectively, "NI 43-101") and documenting exploration work completed by Kaminak on the Coffee project in 2010, 2011, and 2012. All technical reports were filed on SEDAR. During the fourth quarter of 2013, Kaminak commissioned the compilation of a new technical report to document the additional exploration work completed in 2013 and an updated Mineral Resource Statement prepared during the first quarter of 2014.

This technical report documents the exploration and metallurgical test work completed in 2013 and an updated Mineral Resource Statement prepared by SIM Geological Incorporated (SIM Geological) in accordance with NI 43-101. The Mineral Resource Statement reported herein was prepared in conformity with generally accepted CIM *Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines*.

## Property Description and Ownership

The property comprises 3,021 contiguous Yukon quartz mining claims covering an aggregate area of 60,230 hectares owned by Kaminak. Kaminak has acquired 100 percent interest in the property, subject to a 2 percent net smelter royalty to Shawn Ryan, half of which can be repurchased by Kaminak.

## Geology and Mineralization

The Coffee project is located in the Yukon-Tanana Terrane (YTT), an accreted pericratonic rock sequence that covers a large portion of the Omineca Belt in the Yukon and extends into Alaska and British Columbia. The YTT underlies part of the Tintina gold belt and hosts multiple gold deposits, including the Sonora Gulch gold deposit, the Casino copper-gold-molybdenum porphyry, the Boulevard gold prospect, and the Golden Saddle gold deposit. The YTT also hosts volcanogenic massive sulphide (VMS) and Mississippi Valley-type (MVT) deposits.

The Coffee project area is underlain by a package of metamorphosed Paleozoic rocks of the Yukon-Tanana terrane that was intruded by a large granitic body in the Late Cretaceous. The Paleozoic rock package consists of a mafic schistose to gneissic panel which overlies the Sulphur Creek orthogneiss. Both packages form the southwestern limb of a northwest-trending antiformal fold with limbs dipping shallowly to the northeast and southwest.

Within the schistose and gneissic mafic rock package, a thick panel of biotite (+ feldspar + quartz + muscovite ± carbonate) schist with rare lenses of amphibolite overlies a panel of amphibolite and metagabbro with arc-derived geochemical signatures. Within the schistose panel, slices of 20 m thick serpentized ultramafic are in tectonic contact with the surrounding rocks. This rock sequence overlies the augen orthogneiss. These rocks are in contact to the southwest with the  $98.2 \pm 1.3$  Ma Coffee Creek granite. Both the Paleozoic metamorphic rocks and Cretaceous granite are cut by intermediate to felsic dykes (dacite and andesite).

Exploration drilling has led to the discovery of gold mineralization in nineteen separate areas of the Coffee gold project: Supremo T1, Supremo T2, Supremo T3, Supremo T4, Supremo T5, Supremo T7, Sumatra, Latte, Latte North, Latte Extension, Double Double, Arabica, Americano West, Americano, Espresso, Kona, Macchiato, Cappuccino, and Sugar. Gold mineralization is commonly found in narrow to broad

gold-bearing locally brecciated structures or dacite dykes with quartz, dolomite, sericite, and pyrite alteration. The host rock varies between augen gneiss, granite, and biotite-feldspar schist.

The gold mineralization found to date is hydrothermal in origin and both structurally and lithologically controlled. Mineralization is associated with both polyphase brecciation and intense sulphidation of mica-rich host rocks by a CO<sub>2</sub>-As-Sb-S-Au fluid resulting in the formation of arsenian pyrite bearing gold. Micron-scale gold is found within arsenian pyrite and is associated with As-rich growth bands. Oxidation of the arsenian pyrite along rims and cracks results in the release of micron-scale free gold.

## Exploration Status

In 2013, the exploration work completed on the Coffee gold project included:

- Soil geochemical sampling;
- Bedrock mapping and sampling;
- 62 core boreholes (12,273 metres); and
- 240 reverse circulation boreholes (43,205 metres).

The purpose of the 2013 drilling program was to expand upon previous results, focusing on the Supremo (142 reverse circulation boreholes, 26,339 metres; 30 core boreholes, 5,953 metres) and Latte and Latte North (60 reverse circulation boreholes, 10,125 metres; 19 core boreholes, 4,225 metres) zones. In addition, limited programs designed to test the Sumatra and Arabica soil anomalies were completed (38 reverse circulation boreholes, 6,742 metres; 13 core boreholes, 2,094 metres).

Borehole locations were planned and marked by Kaminak geologists using a handheld GPS device. A compass was used to determine borehole azimuth and inclination. Downhole surveys were completed for all core boreholes using a Reflex EZ-Shot electronic single shot (magnetic) device. All reverse circulation boreholes were surveyed with an Icefield Tools Gyro Shot device. Collar locations were surveyed following completion by Challenger Geomatics Ltd. of Whitehorse, YT using Real Time Kinematic (RTK) GPS using five control points established and set by Challenger Geomatics.

Samples were placed in sealed bags and shipped directly by charter plane or barge to the ALS Minerals preparatory laboratory in Whitehorse prior to analysis in North Vancouver. Each sample was assayed for gold using conventional fire assay procedures on 30-gram charges, and analysed for a suite of trace elements using aqua regia digestion. Samples reporting greater than 0.3 gpt Au were subsequently analysed by cold cyanide shake test to measure recoverability by cyanide solution.

## Mineral Processing and Metallurgical Testing

In 2013, seven metallurgical composite samples were assembled from drill core and submitted to Kappes, Cassidy & Associates (KCA) in Reno, Nevada. Each composite was utilized for head analyses, head screen analyses with assays by size fraction, bottle roll leach test work, agglomeration test work, and column leach test work. In addition, some material from one composite was used for comminution and flotation test work. KCA has completed extensive metallurgical testwork for northern projects including Kinross Gold Corporation's Fort Knox project in Alaska and Victoria Gold Corporation's Eagle project in the Yukon.

A total of ten (10) column leach tests were conducted utilizing material crushed to a target size of 80% passing 25 or 12.5 millimetres. During testing, the material was leached for 40 or 42 days with a sodium cyanide solution. Tests were conducted in an enclosed refrigeration unit at a target temperature of 4°C, to simulate cold climate conditions. A single test was conducted at ambient temperature (approximately 22°C) as a control test to compare against the 4°C test results (Table i).



**Table i: Column Leach Test Work**

Description	Target p80 Size, mm	Target Temp., °C	Calculated Head (Au gpt)	Extracted (Au gpt)	Extracted, % Au	Consumption NaCN, kg/t	Addition Hydrated Lime, kg/t
Supremo, Oxide	25	4	1.573	1.455	92%	0.17	1.51
Supremo, Oxide	12.5	4	1.435	1.343	94%	0.28	1.50
Supremo, Oxide	12.5	22	1.547	1.471	95%	0.52	1.57
Supremo, Upper Transition	12.5	4	1.488	1.081	73%	0.31	1.00
Supremo, Lower Transition	12.5	4	1.674	0.797	48%	0.38	1.00
Latte, Oxide	25	4	1.622	1.462	90%	0.19	1.51
Latte, Oxide	12.5	4	1.540	1.382	90%	0.27	1.51
Latte, Upper Transition	12.5	4	1.535	0.717	47%	0.46	2.01
Latte, Lower Transition	12.5	4	1.416	0.411	29%	0.64	1.51
Latte, Sulphide	12.5	4	2.365	0.126	5%	0.46	1.51

## Mineral Resource Estimates

The mineral resource estimates for the Coffee gold project were updated during the period from December 2013 through the end of January 2014 using a geostatistical block modelling approach constrained by gold mineralization wireframes. The model considers information from 961 core and reverse circulation boreholes drilled by Kaminak from 2010 to 2013 (185,000 metres). Four individual block models were constructed using MineSight® (v8.20) with limits determined based on the local UTM coordinated system (Nad83 datum, zone 7). Block size was set at 5 by 5 by 2 metres at Kona and Double Double and 10 by 5 by 3 metres at Latte and Supremo, with block long axes aligned parallel to the strike of the gold mineralization.

The boundaries of the gold mineralization were interpreted by Kaminak from drilling data on vertical sections spaced at 25 to 50 metres intervals. These were linked into a series of 3D domains that form the basis in controlling the distribution of gold mineralization in the resource models. Borehole assay data were composited at 1 metre lengths for geostatistical analysis and grade estimation. Potential outlier samples were examined using probability plots and a combination of capping and volume restriction was applied to these high grade composites to restrict their influence during estimation. A gold grade was estimated for each model block using ordinary kriging and estimation parameters derived from variography.

The extent and intensity of oxidation has been interpreted using a combination of qualitative data collected during drill core and chip logging plus the solubility characteristics derived from a suite of samples tested for cyanide gold solubility. Four oxide types or domains have been interpreted that, in general, represent decreasing intensity of oxidation with depth below surface.

Although an extensive specific gravity database has been generated for the Coffee project, the lack of SG measurements in RC drill holes does not provide sufficient data coverage in some areas to allow for direct interpolation of densities in the resource models. A general relationship is evident between density and the intensity of oxidation and, as an alternative, average SG values have been used to calculate resource tonnages within each of the four oxide type domains.

After validation through a combination of visual inspection and statistical evaluations, the block models were classified on the basis of confidence in the geological continuity and distance from informing data. Block model quantities and grade estimates were classified according to the *CIM Definition Standards on Mineral Resources and Mineral Reserves* (November 2010). Blocks in the Indicated category form relatively continuous zones of mineralization delineated by three or more drill holes on a nominal 25 metre pattern. In the main part of the Latte zone, gold mineralization is thicker and more consistent in nature and, as a result, resources in this area can be included in the Indicated category based on drilling on 35 metre spacing. Resources are included in the Inferred category if they occur within a maximum distance of 50 metres from a drill hole and exhibit a reasonable degree of geologic continuity.

The Coffee gold deposits form relatively continuous, sub-vertical zones of gold mineralization extending from the surface to a depth of several hundred metres. The deposits are amenable to open pit or underground extraction (or a combination of both). The “reasonable prospects for economic extraction” were tested using floating cone pit shells based on reasonable technical and economic assumptions (for example, site operating costs of C\$20 per tonne mined, a pit slope of 45 degrees and gold prices ranging from \$1300/oz to \$1700/oz. These initial evaluations assume 100 percent mining and metallurgical recoveries). These pit optimization evaluations are used solely for the purpose of testing the “reasonable prospects for economic extraction,” and do not represent an attempt to estimate mineral reserves. There are no mineral reserves at the Coffee project. The optimization results are used to assist with the preparation of a Mineral Resource Statement and to select appropriate reporting assumptions.

Analyses of the floating cones show that the majority of the Oxide and Transitional gold mineralization could potentially be amenable to open pit extraction methods as these shells extend to depths of over 200m below surface in many areas. Studies show that 80% of the oxide and transitional mineral resource is located within 150m of surface and 94% of these resources are within a maximum depth of 200m below surface. Although these studies suggest that some mineralized areas may not be economically viable, this represents a relatively small proportion of the resource. In the author’s opinion, any or all of the mineralization at Coffee shows reasonable prospects for economic viability and, therefore, has been included in the estimation of mineral resources. Future detailed engineering studies are required to demonstrate the true economic viability of the resource.

The Mineral Resource Statement for the Coffee project is presented in Table ii. The Mineral Resource Statement is reported at two cut-off grades. Oxide and Transition Mineral Resources are reported at a cut-off grade of 0.5 gpt gold while Sulphide Mineral Resources are reported at a cut-off grade of 1.0 gpt gold reflecting the generally greater depths and differing metallurgical characteristics of this material. The updated mineral resource estimate consists of an Indicated Resource of 14 million tonnes grading 1.56 gpt Au for 719,000 ounces, and an Inferred Resource of 79 million tonnes at 1.36 gpt Au for 3,455,000 ounces of gold.

There are no known factors related to environmental, permitting, legal, title, taxation, socio-economic, marketing, or political issues which could materially affect the mineral resource.

Table ii: Estimate of Mineral Resources for the Coffee Project\*

Area	Oxide			Upper Transition			Lower Transition			Oxide + Transition			Sulphide		
	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal
		Au	Au		Au	Au		Au	Au		Au	Au		Au	Au
	(ktonnes)	(gpt)	(koz)	(ktonnes)	(gpt)	(koz)	(ktonnes)	(gpt)	(koz)	(ktonnes)	(gpt)	(koz)	(ktonnes)	(gpt)	(koz)
<b>Indicated</b>															
Supremo	2,967	2.13	203	847	1.62	44	183	1.78	11	3,997	2.01	258	0	0.00	0
Latte	5,588	1.54	277	2,773	1.22	109	1,958	1.16	73	10,319	1.38	459	42	1.52	2
Combined	<b>8,555</b>	<b>1.75</b>	<b>480</b>	<b>3,619</b>	<b>1.32</b>	<b>153</b>	<b>2,141</b>	<b>1.21</b>	<b>83</b>	<b>14,316</b>	<b>1.56</b>	<b>717</b>	<b>42</b>	<b>1.52</b>	<b>2</b>
<b>Inferred</b>															
Supremo	42,003	1.21	1,636	9,001	1.30	377	2,579	1.41	117	53,583	1.24	2,129	564	1.47	27
Latte	5,673	1.23	224	3,518	1.46	166	3,878	1.43	179	13,070	1.35	569	4,529	1.95	284
Dbl. Dbl.	1,772	2.99	170	1,974	1.81	115	206	1.49	10	3,951	2.32	295	189	2.21	13
Kona	989	1.48	47	1,473	1.20	57	0	0.00	0	2,462	1.32	104	244	1.57	12
Combined	<b>50,437</b>	<b>1.28</b>	<b>2,078</b>	<b>15,967</b>	<b>1.39</b>	<b>714</b>	<b>6,662</b>	<b>1.43</b>	<b>306</b>	<b>73,066</b>	<b>1.32</b>	<b>3,098</b>	<b>5,525</b>	<b>1.89</b>	<b>336</b>

\*Oxide and Transition mineral resources reported at a cut-off grade of 0.5 gpt gold. Sulphide mineral resources reported at a cut-off grade of 1.0 gpt gold. Cut-off grades based on a gold price of US\$1,300 per ounce, site operation costs of US\$20.00 per tonne mined and assumes 100 percent mining and metallurgical recovery. All figures are rounded to reflect the relative accuracy of the estimates. Mineral resources are not mineral reserves and do not have a demonstrated economic viability.

## Conclusions and Recommendations

The exploration work completed by Kaminak at Coffee from 2010 to 2013 was reviewed by independent Qualified Persons. The exploration work was conducted using procedures that meet industry best practices and the Qualified Persons are of the opinion that the exploration data is reliable to support the estimation of mineral resources.

Exploration work to date on the Coffee project has identified widespread gold mineralization associated with fractured and hydrothermally altered rocks. Structural corridors are characterized by deep surface weathering profiles such that the majority of the gold mineralization investigated by Kaminak to date is wholly to partially oxidized. The gold mineralization occurs in steeply dipping structural zones characterized by fragmental rock, dolomite, silica and sericite alteration, minor veining and is occasionally associated with mafic and felsic dykes. The work completed in 2013 improved the understanding of the nature of the gold mineralization and its relationship with lithology, alteration, and structure.

In the opinion of the Qualified Persons the results of the exploration work completed by Kaminak on the Coffee gold project from 2010–2013, and the updated Mineral Resource Statement presented herein, are of sufficient merit to recommend additional exploration expenditures designed to expand and improve the delineation of the mineral resources. The proposed exploration work program recommended by the Qualified Persons includes additional core and reverse circulation drilling to investigate the gold mineralization intersected in 2010–2013 and test its continuity laterally and at depth. The recommended exploration program includes approximately 70,000 metres of drilling:

- Delineation drilling of the Supremo, Latte, Double Double, and Kona zones along regularly spaced sections to improve definition of the boundaries of the gold mineralization, increase understanding of geological and structural controls, and improve classification of additional mineral resources from Inferred to the Indicated or Measured category;
- Additional step-out drilling at the Supremo, Latte, Double Double, and Kona zones to investigate and define geometry and distribution of the gold mineralization and test its lateral and depth continuity with the objective of extending current resources and supporting initial mineral resource evaluation on new zones; and
- Exploration drilling of other gold-in-soil anomalies, especially large continuous high tenor anomalies located at Cappuccino, Macchiato, Espresso, Americano, Arabica, Mocha, Java and Sugar.

The Qualified Persons recommend that additional mineralogical, petrographic, and geochemical studies be completed to study the gold mineralization with respect to the tectonic, metamorphic and magmatic history of the Coffee gold project area.

The total cost for the proposed exploration program is estimated at C\$20,000,000.

The results of engineering, metallurgical, environmental and other studies undertaken during 2013 are currently being incorporated into a Preliminary Economic Assessment with the objective to evaluate at a conceptual level, the viability of a mining project targeting the Indicated and Inferred mineral resources at Supremo, Latte, Double Double and Kona. The study will examine several mining and processing scenarios to determine the most attractive option for the potential development. The PEA, which is scheduled for completion during the first half of 2014, includes the following components:

- mining optimization studies at a range of gold prices
- additional metallurgical test work to test amenability of column leach at coarse crush size
- mine scheduling, infrastructure and conceptual flow sheet design
- economic modelling
- ongoing environmental baseline data collection

The total cost for the completion of a Preliminary Economic Assessment of the Coffee gold project is estimated at C\$2,000,000.

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# 1 Introduction and Terms of Reference

This report was prepared for Kaminak Gold Corp. (Kaminak, TSX.V: KAM) on their Coffee gold project (Coffee Project). The Coffee Project is a resource development gold exploration project located in west-central Yukon, approximately 130 kilometres south of Dawson City. The project encloses several gold prospects on a property covering 60,230 hectares owned and operated by Kaminak Gold Corp. (Kaminak).

Three previous technical reports have been prepared pursuant to Canadian Securities Administrators' National Instrument 43-101 and Form 43-101F1 (collectively, "NI 43-101") and documenting exploration work completed by Kaminak on the Coffee project in 2010, 2011, and 2012. The three technical reports are filed on SEDAR.

During the third quarter of 2013, Kaminak commissioned the Qualified Persons to compile a new technical report to document the additional exploration work completed in 2013. This technical report also documents an update to the initial Mineral Resource Statement prepared by SIM Geological Inc. (SIM Geological) during the fourth quarter of 2012. The services were rendered between May 2013 and February 2014 leading to the preparation of the Mineral Resource Statement reported herein that was disclosed publically by Kaminak in a news release on January 28, 2014.

The updated Mineral Resource Statement was prepared following the guidelines of the Canadian Securities Administrators' National Instrument 43-101 and Form 43-101F1. The Mineral Resource Statement reported herein was prepared in conformity with generally accepted CIM *Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines*.

## 1.1 Scope of Work

The scope of work, as defined in the letter of engagement executed between Kaminak and the independent Qualified Persons, consists of the preparation of an independent technical report in compliance with National Instrument 43-101 and Form 43-101F1 guidelines. This typically requires an assessment of the following aspects of the project:

- Topography, landscape, access;
- Regional and local geology;
- Exploration history;
- Audit of exploration work carried out by Kaminak
- Geological modelling;
- Mineral resource estimation and validation;
- Preparation of a Mineral Resource Statement; and
- Recommendations for additional work.

The technical report was compiled by the Qualified Persons for the construction of the mineral resource model and the preparation of the Mineral Resource Statement.

## 1.2 Work Program

This assignment was initiated by a site visit conducted by Independent Qualified Persons Mr. Robert Sim, P. Geo. of SIM Geological on May 15-16, 2013. During the site visit the Qualified Person visited active and abandoned reverse circulation and core drilling sites, and reviewed core samples from several boreholes. Mr. Sim was subsequently commissioned to consult on the planning of the

2013 drilling programs and, at the conclusion of the 2013 drill program in September 2013, to undertake an updated mineral resource estimate. In addition, samples selected for metallurgical testwork were submitted to Kappes Cassiday and Associates in June of 2013. The technical report was assembled in Vancouver, Canada, during the months of January 2014 through March 2014.

### **1.3 Basis of the Technical Report**

This technical report is based on the following sources of information:

- Personal inspection of the Coffee project area, including drill core from the various prospects;
- Review of the exploration data collected by Kaminak;
- Discussions with Kaminak personnel; and
- Additional information from public domain sources.

This technical report is based on information believed to be reliable. The authors of this report have no reason, other than any documented in this technical report, to doubt the reliability of the historical and recent exploration data contained herein.

### **1.4 Qualification of the Authors**

This technical report, mineral resource model, and mineral resource statement was prepared by Robert Sim, P. Geo (APEGBC#24076) of SIM Geological, with the assistance of Bruce Davis, FAusIMM of BD Resource Consulting, Inc. The mineral processing and metallurgical testing summarized in Section 12 was reviewed and approved by Dan Kappes, P.E. (Nevada#3223). By virtue of their education, membership to a recognized professional association, and relevant work experience, Mr. Sim and Mr. Kappes are independent Qualified Persons pursuant to National Instrument 43-101.

Mr. Robert Sim, P. Geo. is an Independent Geological Consultant with SIM Geological. Mr. Sim is a professional geologist with more than 30 years of experience in exploration, mine operations management, project evaluations, feasibility studies, resource evaluations, and resource modelling. He has been involved in numerous surface and underground base metal and gold deposits in Canada, United States, Central and South America, Europe, Asia, Africa, and Australia.

Daniel W. Kappes P.E. Mining and Metallurgical Engineer is the President of KCA. He is a recognized authority on precious metals heap leaching and has presented several technical papers on the subject. He has directed laboratory and field testing on several projects that have subsequently become major precious metal mines. KCA have been performing commercial testing services aimed at providing data for the heap leaching of gold and silver ores since 1972 and is widely known for its heap leach expertise.

### **1.5 Site Visit**

In accordance with National Instrument 43-101 guidelines, Mr. Sim visited the Coffee project several times during the past several years including September 12-14, 2011, August 28-29, 2012 and May 15-16, 2013. Mr. Sim was accompanied by Tim Smith (Kaminak Vice President Exploration, P. Geo) and various other Kaminak geologic personnel.

The purpose of these visits was to ascertain the geology of the project area, with a specific emphasis on the geology of the several gold occurrences discovered by Kaminak during 2010-2013. During

the site visits, the Qualified Person visited outcrop exposures, trenches, and completed and active drilling sites. The Qualified Person was able to witness the extent of the exploration work carried out by Kaminak on the property. During the site visits, the Qualified Person also examined drill core samples from several boreholes recently drilled on the property.

The Qualified Person was given full access to relevant data and conducted interviews with Kaminak personnel to obtain information on past exploration work, and to understand field procedures used to collect, record, store, and analyse exploration data.

## **1.6 Acknowledgements**

The compilation of this technical report benefited from the collaboration of Kaminak staff, in particular Tim Smith (P.Ge, Vice President Exploration), Fred Lightner (Director of Mine Development), Tom Bokenfohr (GIS and Database Manager), James Scott (Project Geologist), Eric Buitenhuis (Geologist), Adam Fage (P.Ge, Project Geologist), Geoff Newton (P.Ge, Senior Project Geologist) and Rory Kutluoglu (P.Ge, Exploration Manager). Their collaboration and contributions are gratefully acknowledged.

## **2 Reliance on Other Experts**

The Qualified Persons have not performed an independent verification of land title and tenure as summarized in Section 3.1 of this report. The Qualified Persons did not verify the legality of any underlying agreement(s) that may exist concerning the licenses or other agreement(s) between third parties relating to the Coffee Gold property but have relied on the information provided by Kaminak's legal advisors, Astring, Fendrick & Fairman of Whitehorse, Yukon, in an opinion letter dated September 24, 2013. This reliance applies solely to some of the information presented in Section 3.1 and 3.2 below. The authors of this report were informed by Kaminak that, to the best of its knowledge, there are no known litigations potentially affecting the Coffee project.

## **3 Property Description and Location**

The Coffee project is located in west-central Yukon, within the Whitehorse Mining District, Canada, 130 kilometres south of Dawson City (Figure 1). The project comprises 3,021 contiguous claims covering an aggregate area of approximately 60,230 hectares. Claims are summarized in Table 1. The Coffee property covers parts of 1:50 000 scale national topographic system (NTS) map sheets 115J-13, 115J-14, and 115J-15.

### **3.1 Mineral Tenure**

The main Coffee project claim block consists of 3,021 registered claims (2,927 Coffee, 68 Cream, 16 Lion, and 10 Sugar). The entire claim block covers an area measuring approximately 50 kilometres by 12 kilometres (Figure 2). The boundaries of the individual claims have not been legally surveyed. The list of claims is presented in Table 1.

The mineral rights include surface rights under the Yukon Territory Quartz Mining Act, including access to the property under a Class 4 Mining Land Use Permit to undertake exploration activities (see Section 3.3) and the right to extract ore from surface pursuant to the grant of a Quartz Lease (see Section 3.5).

### **3.2 Underlying Agreements**

Kaminak's rights to the Coffee claims were acquired from prospector Mr. Shawn Ryan of Dawson City, through an agreement dated April 27, 2009 (amended and restated on June 9, 2009 and further amended on March 25, 2010 and March 30, 2011). Pursuant to that agreement, in 2011 Kaminak earned a 100 percent legal and beneficial interest in the property by making cash payments of C\$400,000; issuing 2,000,000 shares; and fulfilling a C\$1,800,000 work commitment.

There is a 2 percent net smelter returns royalty (NSR) on the property, payable to Mr. Ryan, subject at any time to a 1 percent buy-back for C\$2 million, with annual advance royalty payments of C\$20,000 commencing December 31, 2013. Subject to the 2% NSR payable to Mr. Ryan, the property is free and clear of all liens and third party interests.



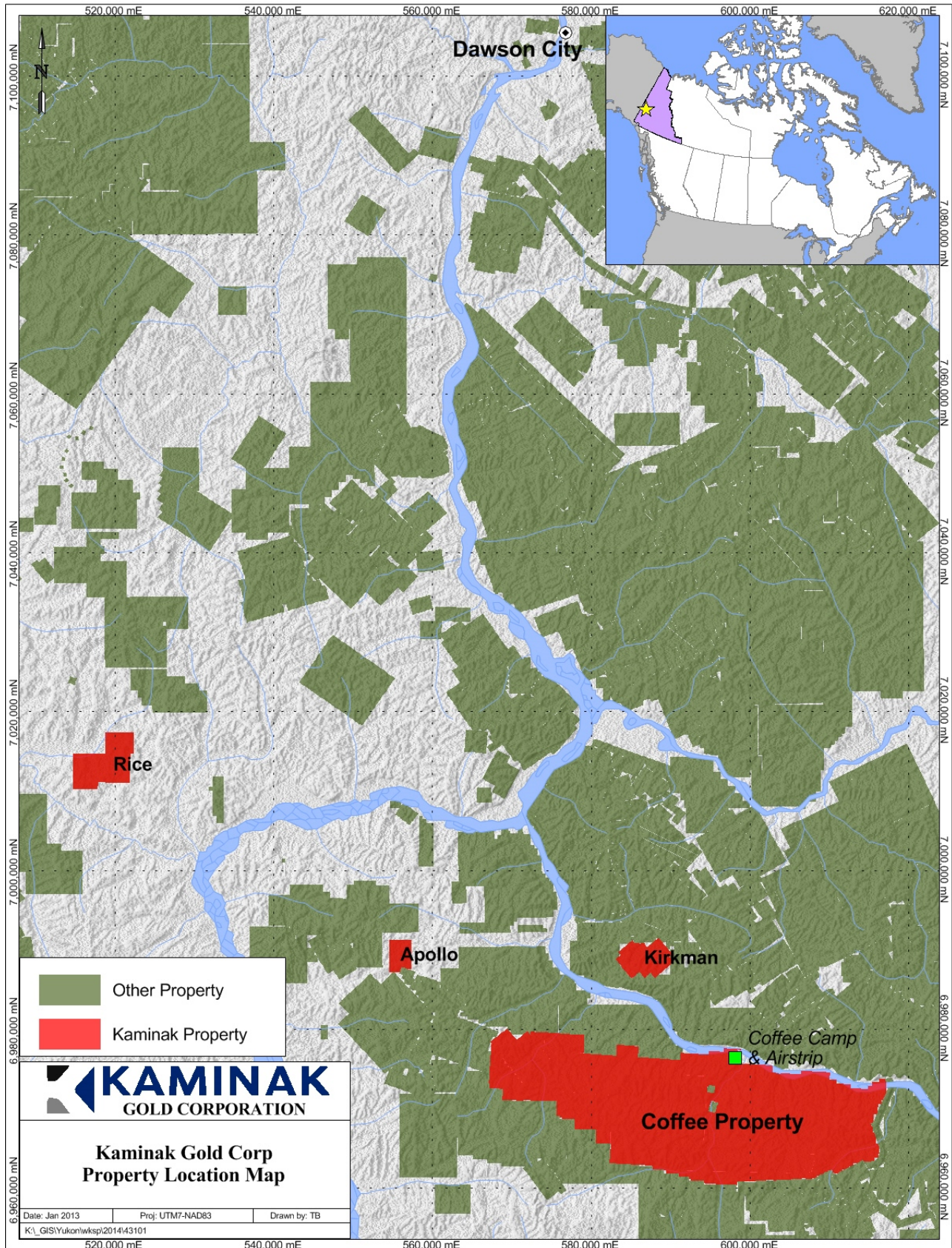
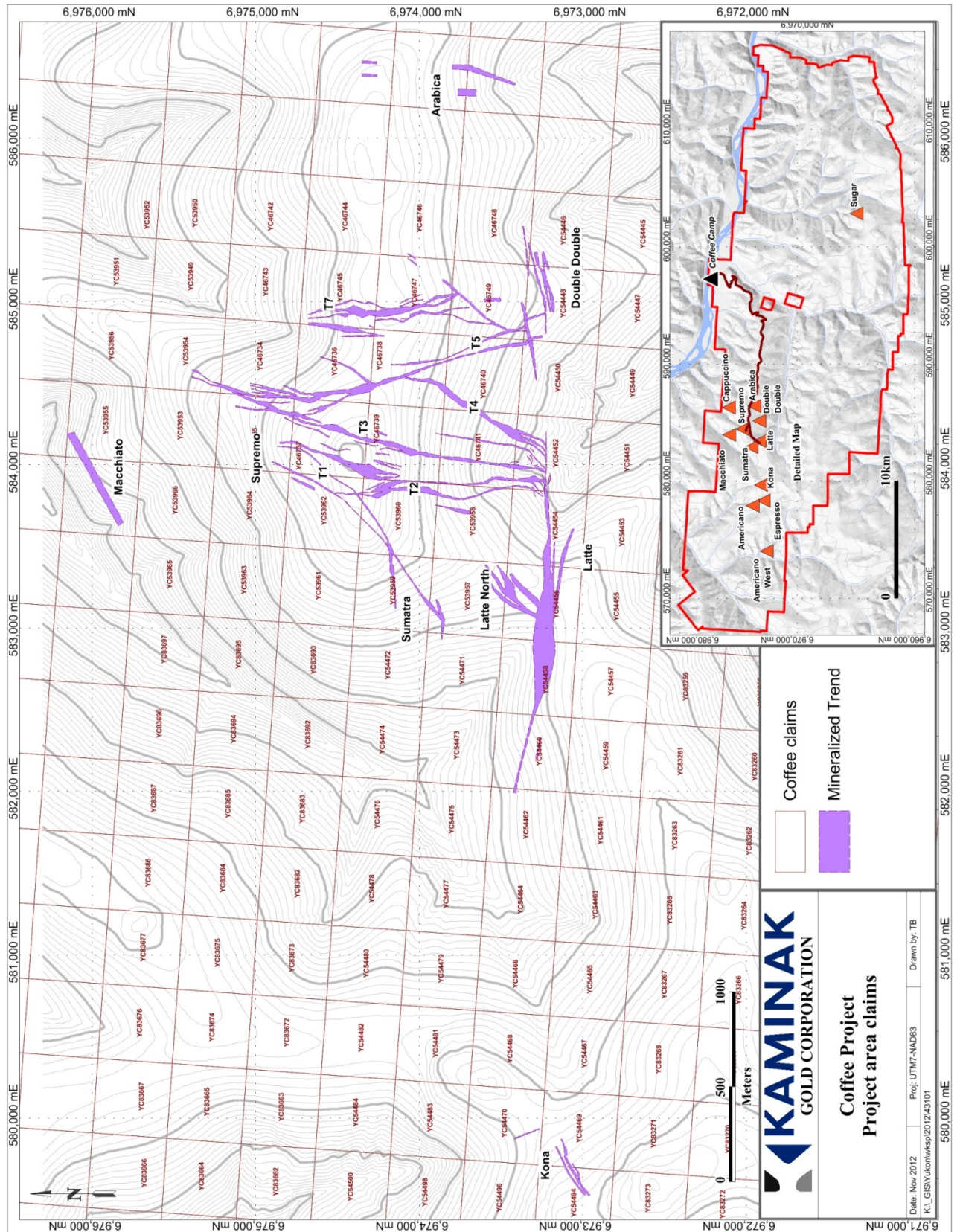


Figure 1: Location Map





### Figure 2: Mineral Tenure Map

**Table 1: Kaminak Coffee property claims**

Property	Claim#	Grant Numbers	Expiry Date	NTS
Coffee	1-16	YC46734-YC46749	15-Dec-2032	115J14
Coffee	17-36	YC53949-YC53968	15-Dec-2028	115J14
Coffee	37-54	YC54445-YC54462	15-Dec-2028	115J14
Coffee	55-62	YC54463-YC54470	15-Dec-2027	115J14
Coffee	63-68	YC54471-YC54476	15-Dec-2028	115J14
Coffee	69-92	YC54477-YC54500	15-Dec-2027	115J14
Coffee	105-112	YC60176-YC60183	15-Dec-2028	115J14
Coffee	113-226	YC83190-YC83303	15-Dec-2026	115J14
Coffee	227-276	YC83652-YC83701	15-Dec-2026	115J14
Coffee	277-344	YC89405-YC89472	15-Dec-2026	115J14
Coffee	345-404	YC93441-YC93500	15-Dec-2023	115J13-14
Coffee	405-410	YC97368-YC97373	15-Dec-2023	115J14
Coffee	411-578	YC92601-YC92768	15-Dec-2023	115J13-14
Coffee	587-610	YC92777-YC92800	15-Dec-2023	115J13-14
Coffee	611-625	YC93351-YC93365	15-Dec-2023	115J13-14
Coffee	627-726	YC96801-YC96900	15-Dec-2023	115J13-14
Coffee	727-792	YC92535-YC92600	15-Dec-2023	115J14
Coffee	793-865	YC92818-YC92890	15-Dec-2023	115J14
Coffee	866-894	YC93271-YC93299	15-Dec-2023	115J14
Coffee	895-910	YC92801-YC92816	15-Dec-2023	115J14
Coffee	911-960	YD12701-YD12750	15-Dec-2024	115J14
Coffee	961-969	YD13231-YD13239	15-Dec-2024	115J14
Coffee	970-1416	YD13241-YD13687	15-Dec-2024	115J14
Coffee	1421-1429	YD13692-YD13700	15-Dec-2024	115J14
Coffee	1430	YD42501	15-Dec-2024	115J14
Coffee	1435-1496	YD42506-YD42567	15-Dec-2024	115J14
Coffee	1497-1714	YD42701-YD42918	15-Dec-2024	115J14-15
Coffee	1715-1718	YD43085-YD43088	15-Dec-2024	115J14
Coffee	1719-1781	YD43929-YD43991	15-Dec-2024	115J13-14
Coffee	1782-1954	YD43992-YD44164	15-Dec-2023	115J13-14
Coffee	1955-2124	YD16283-YD16452	15-Dec-2024	115J14
Coffee	2125-2346	YD89255-YD89476	15-Dec-2024	115J14-15
Coffee	2347-2596	YD91501-YD91750	29-Sep-2022	115J15
Coffee	2597-2724	YD91751-YD91878	29-Sep-2021	115J14-15
Coffee	2725-2740	YD91879-YD91894	29-Sep-2022	115J15
Coffee	2741-2812	YD91895-YD91966	29-Sep-2021	115J15
Coffee	2813-2846	YD91967-YD92000	29-Sep-2022	115J15
Coffee	2847-2936	YD90101-YD90190	29-Sep-2022	115J15
Coffee	93-104	YC60164-YC60175	15-Dec-2028	115J14
Coffee	579-586	YC92769-YC92776	15-Dec-2023	115J14
Cream	1-22	YC60088-YC60109	15-Dec-2024	115J13
Cream	23-68	YC83144-YC83189	15-Dec-2023	115J13
Lion	1-16	YC83761-YC83776	15-Dec-2024	115J14
Sugar	1-10	YC95568-YC95577	15-Dec-2025	115J15

### **3.3 Permits and Authorization**

Kaminak has obtained all permits and certifications required from governmental agencies to allow surface drilling and exploration activities on the Coffee project.

A Class 3 Mining Land Use Permit was issued by the Energy, Mines and Resources Department of the Yukon Government on June 16, 2010, which allowed Kaminak to undertake exploration activities including drilling and trenching, and to build and operate a 50-person camp located adjacent to the Thistle Creek airstrip.

In order to permit the increased exploration activities planned in 2011 and 2012, a Class 4 Mining Land Use Permit was obtained on July 12, 2011, amended on February 29, 2012, with an expiry date of July 11, 2016, superseding the Class 3 permit. The Class 4 permit included provisions for: an additional 80-person camp located on the Yukon River near the confluence with Coffee Creek, a 40-kilometre access road, temporary trails to allow improved access to the property, a winter road, and surface drilling and exploration activities on the Coffee project. The Class 4 Mining Land Use Permit (#LQ00312a) is the sole permit necessary for the exploration work currently undertaken.

A condition of the Class 4 permit was the closure and reclamation of the Thistle Creek Camp in 2012. Subsequently, at the start of 2012 the Thistle Creek accommodations and ancillary equipment were moved to the Coffee Creek camp where the two camps were amalgamated to form a single camp capable of accommodating up to 80 personnel. The increased size of the camp (greater than or equal to 50 persons) triggered the requirement for a Class B Water Licence, which was applied for and issued by the Yukon Water Board on April 18, 2012 (licence number MN12-014), with expiry date of July 11, 2016. The Thistle Creek camp clean-up was completed in 2013 and was signed off by the Senior Natural Resources Officer for Mining.

Kaminak has advised the authors of this report that it has obtained and complied with any applicable permit requirements to conduct mineral exploration on the Coffee project claims.

Apart from those disclosed herein, the Qualified Persons are unaware of any other significant factors and risks that may affect access, title, or the right or ability to perform the exploration work recommended for the Coffee project.

### **3.4 Environmental and Heritage Considerations**

The Coffee project is an undeveloped exploration project. Surface disturbances resulting from work completed by Kaminak include building of an access road and temporary trails for drill access, drill pad clearing, trenching, diamond core drilling, reverse circulation drilling, and other non-disturbing geological activities.

In 2010, Kaminak developed an environmental procedures document that provides guidelines for minimizing environmental impact from exploration activities while following best practices and complying with relevant legislation and regulations. Included in this document are procedures for reclamation and rehabilitation, including an action plan for clean-up of spills, and for the initiation of a wildlife monitoring log. Prior to commencement of the 2011 field season, the environmental procedures document was updated to reflect new information from wildlife monitoring and new conditions stipulated under a Class 3 Mining Land Use Permit. Prior to commencement of the 2012 field season, the environmental procedures document was reviewed with respect to compliance with the Class 4 Mining Land Use Permit and Class B Water Licence permit application.

In September 2010, Kaminak retained Access Consulting Group (Access) of Whitehorse, Yukon to initiate an environmental base line survey. Works initiated immediately included commencement in October 2010 of monthly water quality sampling of the main streams and creeks draining from the area of exploration activity at the Coffee property. Monthly water quality sampling has been ongoing since October 2010.

Access has collected 39 monthly datasets, from October 2010 to February 2014 of sample data from locations on and tributaries to Coffee, Halfway, and Independence Creeks and from the Yukon River upstream and downstream of the Project. Samples have been analysed by Maxxam Analytics of Burnaby, BC and evaluated against the full suite of parameters specified by the Canadian Council of the Ministers of the Environment *Water Quality Guidelines for the Protection of Aquatic Life* ("CCME-PAL").

On February 24, 2014 Access concluded that "The water quality data to date on the Coffee Project area show system conditions which are generally consistent with unimpacted small creek systems monitored at other projects in the central Yukon. This water quality baseline program provides a good characterization of actual water quality conditions prior to mining and naturally occurring physiochemical conditions and temporal variability observed for the Coffee Project area. The three years of data collected shows seasonal variation in baseline water quality, with similar trends observed between seasons, with a number of parameters naturally exceeding the CCME PAL guidelines." (Keesey, 2014)

In 2013, Access added two additional hydrology stations to the baseline survey and initiated a geochemical baseline program. Kaminak also retained Tetra Tech EBA to start a hydrogeology baseline survey. Four stations were established.

Kaminak recognizes and respects that the Coffee project lies within the traditional territory of the Tr'ondëk Hwëch'in First Nation. A self-governing First Nation, the Tr'ondëk Hwëch'in works closely with Kaminak to identify and maximize opportunities arising from mineral exploration activities. Additionally, ongoing dialogue with Tr'ondëk Hwëch'in's Natural Resources and Lands Department and Heritage Department ensures wildlife, environment, and heritage values are readily identified and addressed. A portion of the claim block is located within the overlap area with Selkirk First Nation; however, Kaminak did not conduct any exploration activities in the overlap area in 2013.

During August 2010, in collaboration with the Tr'ondëk Hwëch'in, Kaminak retained Matrix Research Limited (Matrix Research) of Whitehorse, Yukon, to conduct a heritage resources overview assessment and preliminary field reconnaissance over the Coffee property. One historical site and three pre-contact First Nations sites were identified within the property. Buffers were set up around the sites. However, none occur in proximity to established zones of gold mineralization and there was no impact on exploration programs during the remainder of the 2010 season or preceding years.

In 2011, as follow-up to the overview assessment, a more detailed heritage assessment was undertaken including archaeological fieldwork which was completed in June 2011. Results were communicated by Matrix Research to both Kaminak and Tr'ondëk Hwëch'in during the field work. The survey confirmed that no heritage sites were located within, or overlapping with, zones of established gold mineralization or planned exploration, nor areas of ancillary infrastructure including the Coffee Creek camp area and the proposed access road. Buffer zones around heritage sites were established at the minimum required distance of 30 metres for protection of the sites. Kaminak received the final report detailing the findings and recommendations of the 2011 Heritage Assessment survey in July 2012 (Matrix Research, 2012).



In 2012, an Oral History project of the Coffee Creek area was undertaken by the Tr'ondëk Hwëch'in Heritage Department and supported by Kaminak. The project included a site visit in July 2012 by the project participants including Tr'ondëk Hwëch'in First Nation Heritage Officers and the lead researcher/author of the Oral History project.

In 2013, Kaminak was informed by White River First Nation that the Coffee project was located within their asserted traditional territory. Kaminak initiated and supported a collaborative study with Tr'ondëk Hwëch'in, Selkirk First Nation and White River First Nation to compile a list of the studies that had been previously conducted for the Coffee Creek area and identify any information gaps. The collaborative studies will continue in 2014.

In 2013, Kaminak hired a Tr'ondëk Hwëch'in citizen as an Environmental Monitor. One of the responsibilities of the Environmental Monitor was to oversee the re-vegetation study initiated in the summer of 2013. The study will provide important information to Kaminak for the reclaiming and closing of sites.

### 3.5 Mining Rights in the Yukon

The Yukon mining industry is governed by the Quartz Mining Act. A basic overview of mining rights in the Yukon is given as follows from the government's website ([www.emr.gov.yk.ca/mining](http://www.emr.gov.yk.ca/mining)):

*"The Quartz Mining Act [QMA] is the primary legislation governing hard rock mining activities on lands in Yukon. The purpose of the QMA is to encourage prospecting, exploration, staking and development of mineral resources by providing an orderly system of allocation of exclusive rights to minerals. Specific permission must be obtained where the surface is occupied by others.*

*"Mineral tenure is granted under the free entry system in Yukon. This system gives individuals exclusive right to publicly-owned mineral substances from the surface of their claim to an unlimited extension downward vertically from the boundary of the claim or lease. All Commissioner's lands are open for staking and mineral exploration unless they are expressly excluded or withdrawn by order-in-council (e.g. parks, interim protected lands, buildings, dwelling houses, cemeteries, agricultural lands, settlement lands)."*

A Mineral Claim ("claim") is a parcel of land granted for hard rock mining, which also includes any ditches, water rights or other things used for mining the claim. A claim is a rectangular plot of land, which does not exceed 1,500 feet by 1,500 feet. All angles of a claim must be right angles, except for fractional claims, which consist of land found between and bounded on opposite sides by previously located mineral claims. A fractional claim does not need to be rectangular in form and the angles do not need to be right angles.

Staking a claim requires that claim tags be obtained from the Mining Recorder prior to staking in the field and that posts be placed in the ground according to specific regulated requirements. Tenure to the mineral rights is dependent on performing exploration work on the claims. To renew claims, a full report of the work done must be submitted to the Mining Recorder when work has been done on claims. Renewal of a claim requires that \$100 of work be done per claim per year, based on the Schedule of Representation Work outlined in the Quartz Mining Act. Where work is not performed, a payment in lieu of work can be filed. Claims can be grouped to allow for assessed work performed on one claim to be distributed to adjoining claims.

A Quartz Lease (“lease”) can be acquired by upgrading claims which have known vein or lode mineral deposits. A lease is considered the most secure mineral right in Yukon. Companies contemplating production will take their claims to lease to provide secure title. Leases are issued for 21-year periods.

## **4 Accessibility, Climate, Local Resources, Infrastructure and Physiography**

### **4.1 Accessibility**

The Coffee project is located within the Dawson Range, approximately 130 kilometres south of Dawson City and approximately 160 kilometres northwest of Carmacks. The claims form an irregular rectangular block situated parallel to and south of the Yukon River (Figure 1). The Casino copper-gold porphyry deposit (Western Copper Corporation) is located approximately 30 kilometres southeast of the main drilled zones on the Coffee project.

Access to the property is by helicopter or airplane from Dawson or Carmacks to the Coffee Creek airstrip, and from there by helicopter. In 2011, Kaminak constructed a 23-kilometre road from the barge landing at the Coffee Creek camp to the Supremo and Latte drilling areas. This road was the main access to the work sites during the 2012 and 2013 exploration campaigns.

### **4.2 Local Resources and Infrastructure**

Although there are currently no all-weather or winter roads connecting the camp to any of the major communities in the Yukon, access to the Coffee project is good. An airstrip is located at the Coffee Creek camp approximately 10 kilometres from the areas of gold mineralization.

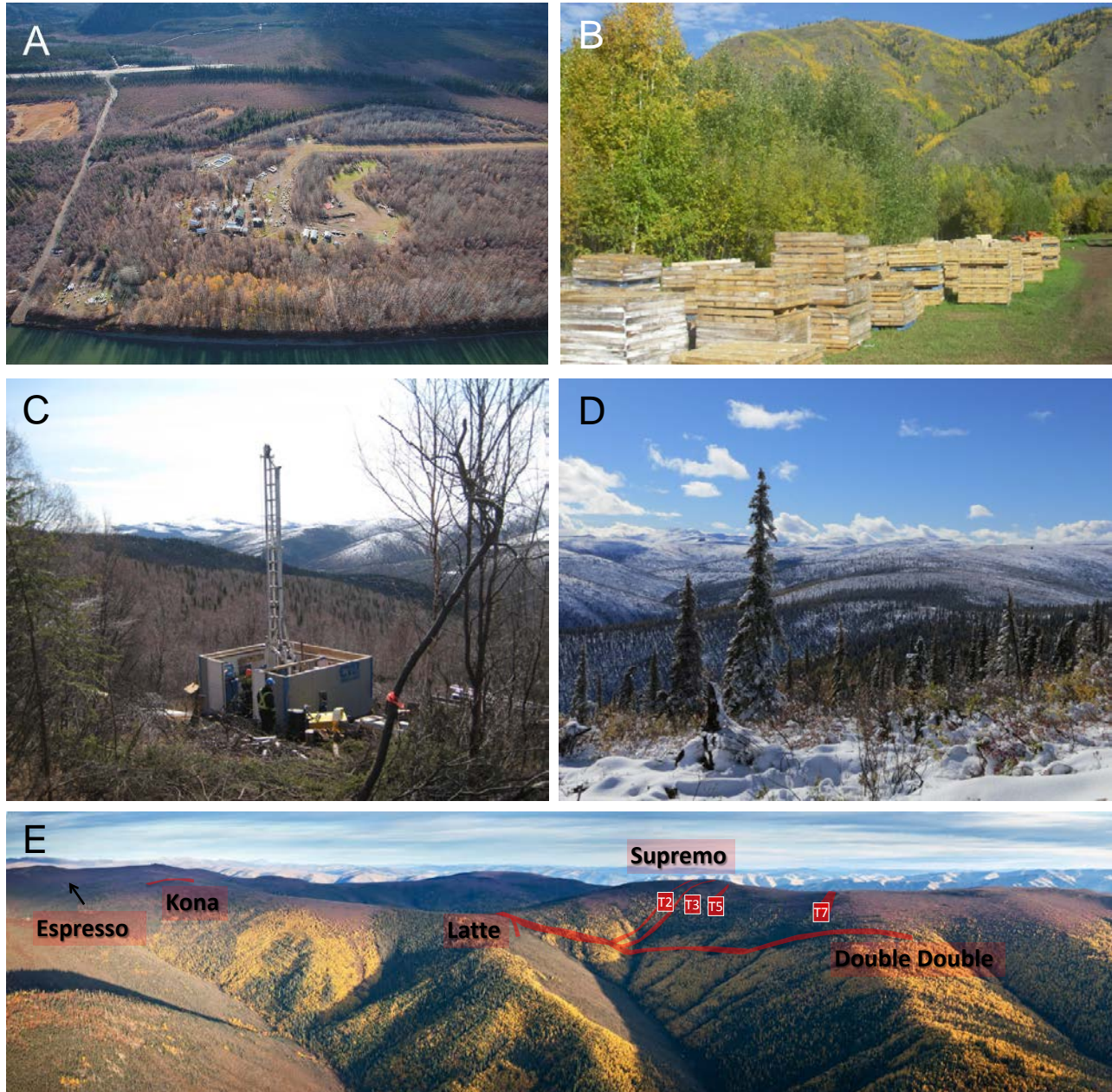
River access to the area is provided by barge landings on the Yukon River at Coffee Camp. River transport along the Yukon River from Dawson City to the Coffee Creek camp is available for five months during the summer period when the river is free of ice.

### **4.3 Climate**

The Yukon has a subarctic continental climate with a summer mean temperature of 10 degrees Celsius and a winter mean temperature of -23 degrees Celsius. Summer and winter temperatures can reach up to 35 and -55 degrees Celsius, respectively. Dawson City, the nearest access point, has a daily temperature average above freezing for 180 days per year.

### **4.4 Physiography**

The Coffee property is located in the northern Dawson Range, forming a moderate plateau that escaped Pleistocene glaciation. As such, the topography of the area is defined by stream erosion resulting in gently rounded hills with tightly incised valleys. Across the property, elevations range from 400 metres to 1,500 metres above sea level. The majority of the property is above tree line and contains short shrubby vegetation. The Coffee project claims encompass an area of partially tree-covered hills on the Yukon Plateau, incised by mature drainages that are part of the Yukon River watershed. The property has local mature pine forests with thick moss cover on the ground. Bedrock exposures are scarce (Figure 3).



**Figure 3: Typical Landscape in the Project Area**

- A. Overview of the Coffee Creek camp looking south.
- B. Core yard at Coffee Creek camp looking north.
- C. Active core drilling at Double Double looking southeast.
- D. View looking west-southwest towards Latte from the Supremo Zone.
- E. Aerial overview looking northwest of the Espresso, Kona, Latte, Supremo and Double Double mineralized zones.



## 5 History

The Coffee Creek area has limited hard rock exploration history and only minor placer activity. Coffee Creek has experienced sporadic exploration for placer gold from the turn of the last century to 1982. Hard rock exploration in the area before 1981 was limited to reconnaissance work in the 1960s and 1970s for porphyry copper.

C.D.N. Taylor, P.Eng., (Atlantic Energy Limited, August 1981) reported that soil and silt samples collected from Coffee Creek, near the confluence of the Yukon River, contained “uniformly high, double digit arsenic values.” Taylor recommended that Coffee Creek be re-sampled during low water table levels (cited in Jaworski and Meyer, 2000).

Deltango Gold Ltd. conducted silt and soil sampling in 1999 in the area of the Coffee project claims and recommended further work, based on anomalous results (Jilson, 2000). In 1999-2000, a brief Coffee Creek area exploration program was conducted by consultants for Prospector International Resources. This program involved stream sediment sampling of secondary drainages, contour and ridgeline reconnaissance soil sampling, rock sampling of available outcrop and prospecting, and minor fluid inclusion work. The 1999 work identified an open-ended reconnaissance soil gold anomaly. The 2000 work further delineated this anomaly to be approximately 400 by 900 metres and further soil sampling in addition to mechanized trenching were recommended (Jaworski and Meyer 2000; Jaworski and Vanwermeskerken 2001).

In 2006 and 2007, Ryanwood Exploration conducted grid sampling and ridge top soil sampling traverses on the Coffee project claims (Ryan, 2007; Ryan, 2008).

In June 2009, Kaminak executed an option agreement with Mr. Shawn Ryan to acquire the Coffee project. Following this agreement, Kaminak expanded the soil sampling grid in the Coffee areas, developing targets at Supremo, Latte, Kona, Espresso and Double Double. Trenching, geological mapping, and prospecting were conducted at all of these target areas. Kaminak pursued drilling programs in 2010, 2011, 2012, and 2013 on Supremo, Latte, Double Double, Kona, Espresso, Americano, and Sugar.

The exploration and drilling activities completed by Kaminak from 2009 to 2013 are discussed in Sections 8 and 9 below.

## 6 Geological Setting and Mineralization

### 6.1 Regional Geology

The Coffee project is located in the Yukon-Tanana Terrane (YTT), an accreted pericratonic rock sequence that covers a large portion of the Omineca Belt in the Yukon and extends into Alaska and British Columbia. The YTT underlies part of the Tintina gold belt and hosts multiple gold deposits, including the Sonora Gulch gold deposit, the Casino copper-gold-molybdenum porphyry, the Boulevard gold prospect, and the Golden Saddle gold deposit (Bennett et al., 2010; Allan et al., 2013). The YTT also hosts volcanogenic massive sulphide (VMS) and Mississippi Valley-type (MVT) deposits (Figure 4).

The YTT is composed of a basal metasiliclastic sequence overlain by three subsequent volcanic arcs. The oldest component of the Yukon-Tanana terrane is the pre-Late Devonian Snowcap assemblage, which consists of metasediments including psammitic schist, quartzite, and carbonaceous schist in addition to local amphibolite, greenstone, and ultramafic rocks (Piercey and Colpron, 2009). The Snowcap assemblage was deposited on the ancient Laurentian margin in a passive marine setting (Piercey and Colpron, 2009). The beginning of eastward subduction of the paleo-Pacific plate led to the formation of a magmatic arc at approximately 365 Ma (Colpron et al., 2006). Rapid westward slab rollback caused significant extension, which initiated the formation of the Slide Mountain Ocean back-arc basin by ~360 Ma (Colpron et al., 2007). Arc volcanism during the Wolverine-Finlayson magmatic cycle (365-342 Ma) deposited submarine mafic and felsic volcanic rocks of the widespread Finlayson assemblage onto the Snowcap assemblage (Colpron et al., 2006).

A reversal of subduction polarity during the Late Permian resulted in the western margin of Slide Mountain Ocean subducting beneath the evolving YTT (Erdmer et al., 1998). This subduction initiated a magmatic arc which was active from 269-253 Ma and formed the Klondike arc assemblage, the youngest member of the outboard Yukon-Tanana terrane (Allan et al., 2013; Colpron et al., 2006). Closure of the Slide Mountain Ocean by the Latest Permian led to the obduction of the YTT onto the Laurentian margin, causing a collisional event responsible for lower amphibolite facies metamorphism in the Coffee project area (Beranek and Mortensen, 2011). In addition, collision resulted in the development of a low-angle transpositional foliation recognized throughout the Yukon-Tanana terrane ( $S_2$  of Berman et al., 2007).

East-dipping subduction along the now docked YTT caused intra-arc shortening and contractional deformation. In the Klondike and the area of the Coffee project, thrust fault-bounded panels of Slide Mountain assemblage greenstone and serpentinized ultramafic occur within the tectonic stratigraphy of the YTT (Buitenhuis, 2014; MacKenzie et al., 2008). These thrust-emplaced slices are generally less than 100 metres in thickness, dip to the southwest, and persist for tens of kilometres in some areas (MacKenzie and Craw, 2010 and 2012). The emplacement of these slices is contemporaneous with northeast-vergent, open to tight folding dated between 195 and 187 Ma (Berman et al., 2007).

Beginning in the early to mid-Cretaceous, localized rapid uplift and exhumation occurred throughout the YTT in Yukon and Alaska, including within the Dawson Range (McCausland et al., 2006; Dusel-Bacon et al., 2002; Gabrielese and Yorath, 1991). Extension and unroofing of the Dawson Range was accompanied by the emplacement of the Coffee Creek granite and Dawson Range batholith (~110-90 Ma; McKenzie et al., 2013; Wainwright et al., 2011; Colpron et al., 2006; Mortensen, 1992). This localized extension and exhumation is recorded by an apparent age-resetting event observed in white mica in western Yukon Tanana at roughly 90 Ma (Douglas et al., 2002), in rhenium-osmium dates in molybdenite (92.4 Ma), and U-Pb dates in monazite (92.5 Ma) from

plutons in east-central Alaskan YTT (Selby et al., 2002). At the Coffee property, this extension resulted in the activation of the Coffee Creek fault system, a set of dextral strike-slip faults and associated north-to-northeast brittle faults interpreted as splays off of the regional Big Creek fault to the south east (Sánchez et al., 2013; Johnston, 1999).

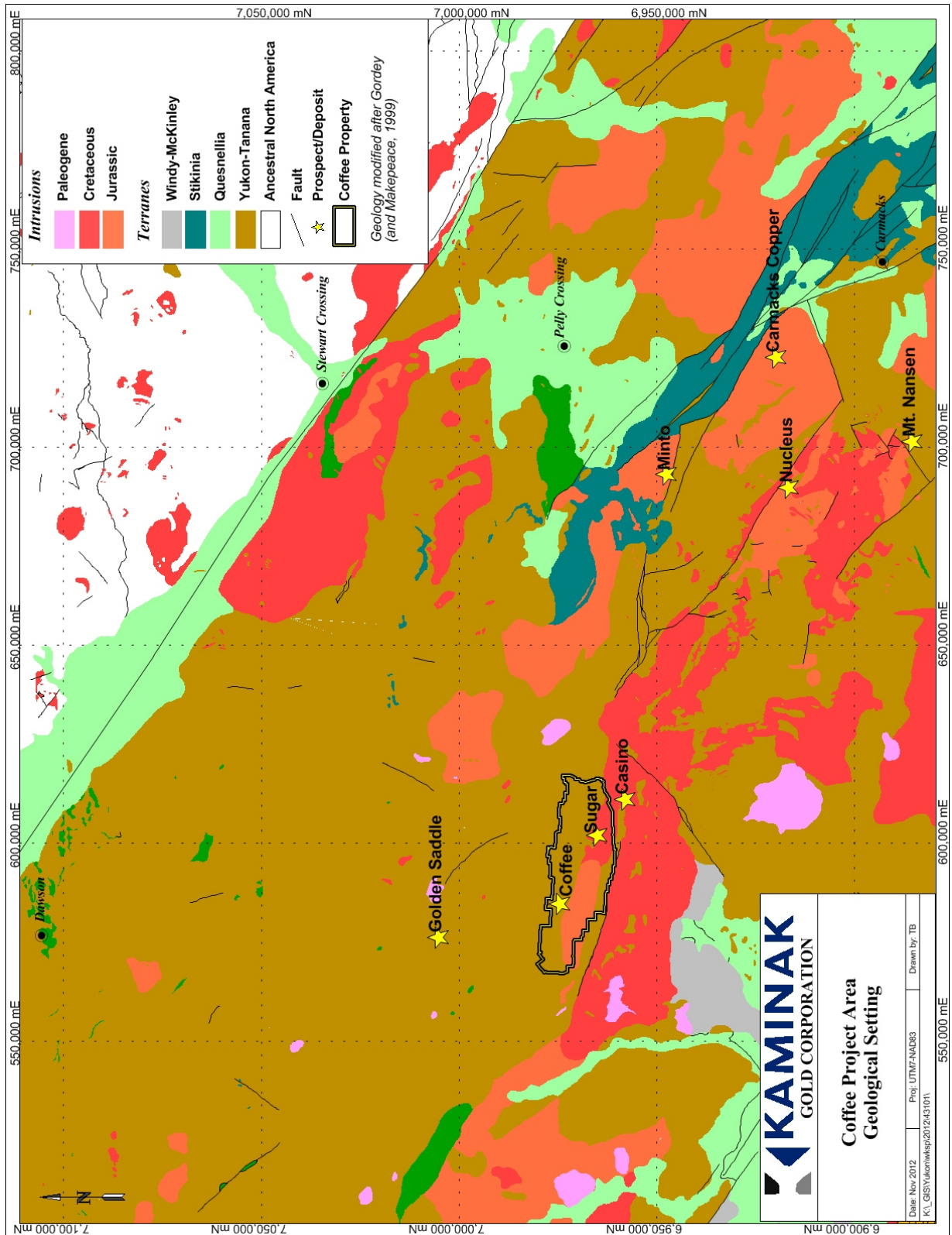
## 6.2 Property Geology

The Coffee project area is underlain by a package of metamorphosed Paleozoic rocks of the Yukon-Tanana terrane that was intruded by a large granitic body in the Late Cretaceous. The Paleozoic rock package consists of a mafic schistose to gneissic panel which overlies the Sulphur Creek orthogneiss. Both packages form the southwestern limb of a northwest-trending antiformal fold with limbs dipping shallowly to the northeast and southwest.

Within the schistose and gneissic mafic rock package, a thick panel of biotite (+ feldspar + quartz + muscovite ± carbonate) schist with rare lenses of amphibolite overlies a panel of amphibolite and metagabbro with arc-derived geochemical signatures. Within the schistose panel, slices of 20 m thick serpentinized ultramafic are in tectonic contact with the surrounding rocks. This rock sequence overlies the augen orthogneiss. These rocks are in contact to the southwest with the  $98.2 \pm 1.3$  Ma Coffee Creek granite. Both the Paleozoic metamorphic rocks and Cretaceous granite are cut by intermediate to felsic dykes (dacite and andesite).

Due to the rare outcrop exposure on the property (< 5%), the geological map (Figure 5, Figure 6) has been compiled from a combination of geological traverses, bedrock mapping, borehole data, soil geochemistry, and geophysics (magnetic and radiometric).

The magnesium number from soil samples ( $Mg\# = Mg/Mg+Fe$ ) was used to discern mafic from felsic units with the granite being the most felsic, followed by the felsic gneiss. The mafic schist unit was further subdivided into felsic-intermediate schist, biotite schist, amphibolite, and ultramafic rocks (Table 2).



**Figure 4: Geological Setting of the Coffee Project Area**  
(Modified after Gordey and Makepeace, 1999)

**Table 2: Main Rock Units in the Coffee Project Area**

<b>Rock Unit</b>	<b>Description</b>
Felsic Gneiss	Variable quartz + feldspar augen + biotite + muscovite. Typical Mg# 2-28. Low in potassium. Host to gold mineralized zones at Supremo.
Biotite Schist	Biotite+/-feldspar+/-quartz+/-muscovite+/-amphibole. Commonly carbonate-rich. High in potassium. Typical Mg# 20 - 40. Locally mylonitic. Host to gold mineralized zones at Latte.
Muscovite Schist	Mainly quartz + muscovite. Typical Mg# 10 - 20. Locally mylonitic.
Biotite Amphibolite	Amphibole + feldspar + biotite. Typical Mg# 20 - 40. Biotite and amphibole both Fe-rich. Contains up to 20% biotite.
Amphibolite	Found within the lower mafic footwall. Amphibole + feldspar ± biotite. Typical Mg# 30-50, biotite and amphibole more Mg-rich than biotite amphibolite. Contains up to 15% biotite.
Metagabbro/Amphibolite	Interleaved metagabbro with coarse magnesiohornblende + feldspar, and fine grained, massive amphibolite with >95% magnesiohornblende. Moderate to strong retrogression to actinolite. High Mg content of biotite, amphibole.
Ultramafics	Serpentinite, pyroxenite or listwaenite. Typical Mg# 50 - 73, higher than all amphibolites and metagabbro. Very high in chromium and nickel.
Granite	Coffee Creek granite and Dawson Range batholith. Both are phases of the Whitehorse Plutonic suite and are uranium-rich. Dawson Range batholith higher in Thorium. Both are identifiable using airborne radiometrics.
Dacite Dykes	Quartz + feldspar phenocryst porphyry. Generally strongly silicified and sericitized. Strong spatial association with mineralized gold zones.
Andesite Dykes	Feldspar phenocrystic. Aphanitic in gold bearing structures where all original textures are destroyed by intense silicification and sericitization. Strong spatial association with mineralized gold zones.

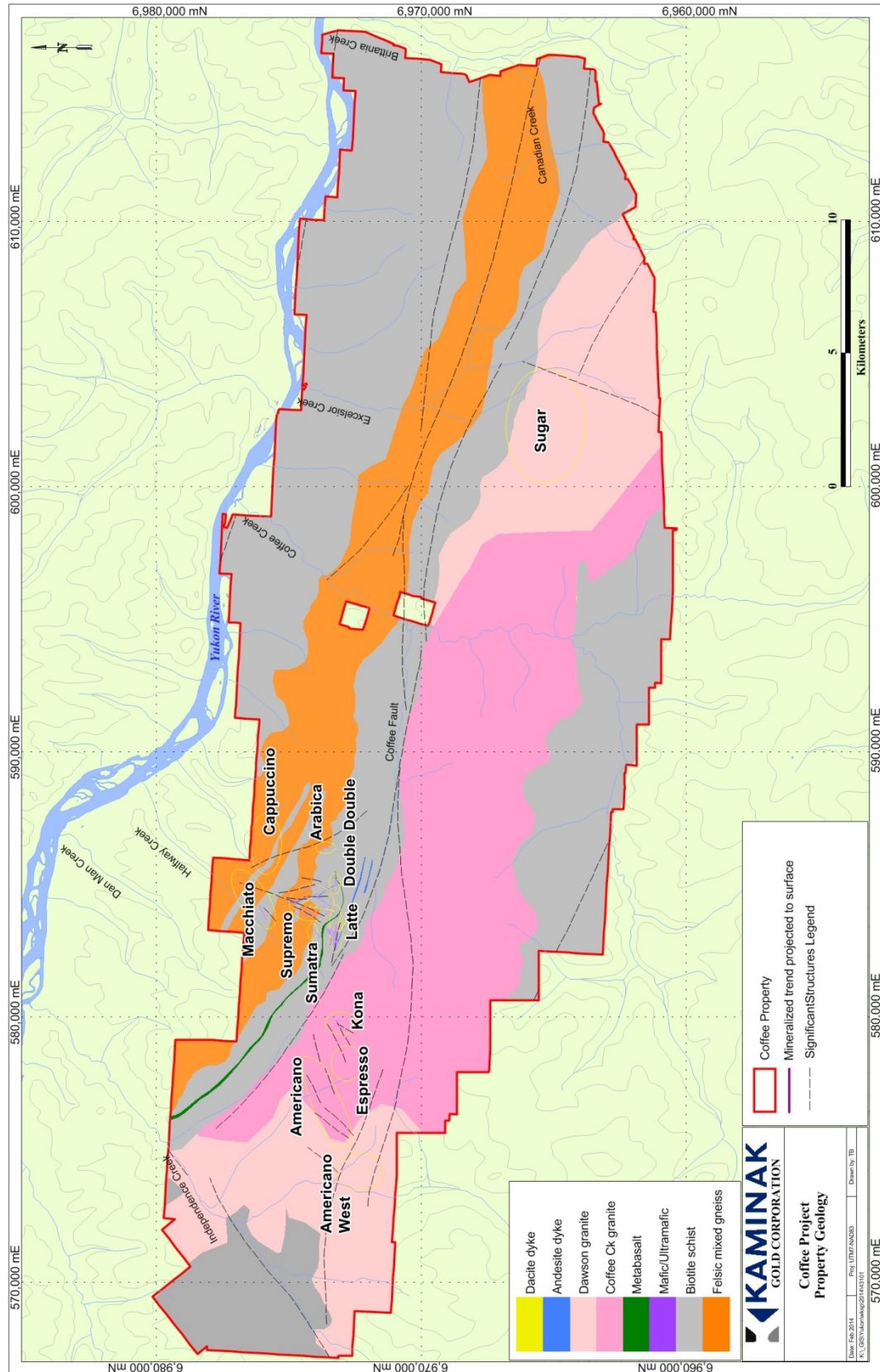


Figure 5: Geological Map of the Main Drilled Zones in the Coffee Project Area



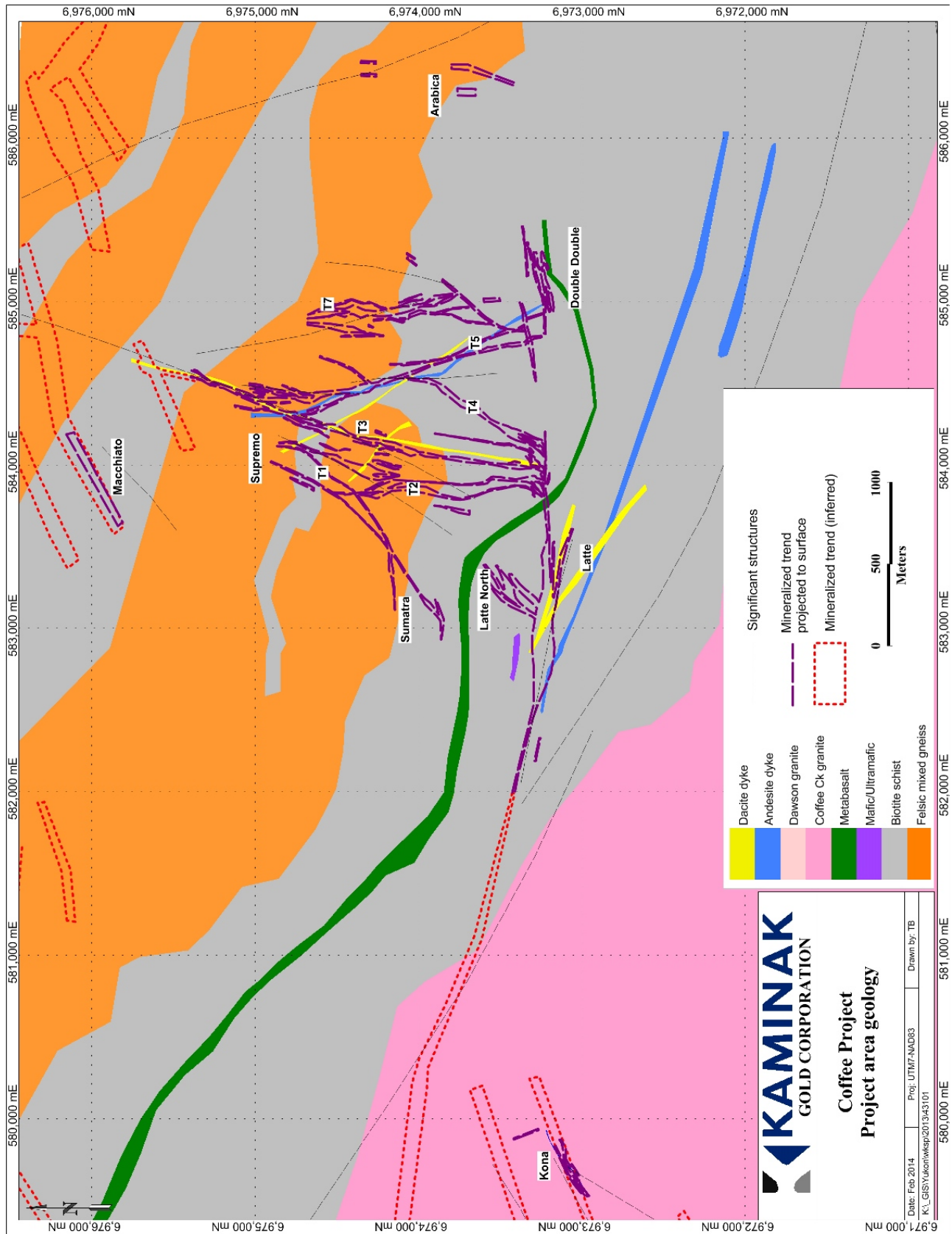
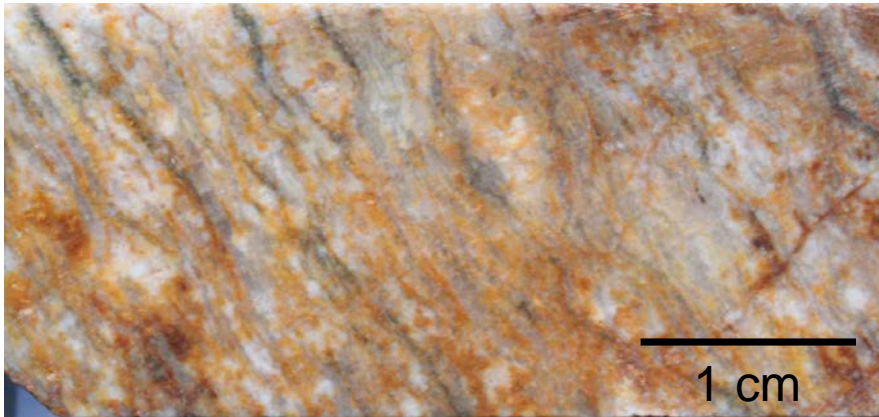


Figure 6: Geology in the Supremo, Latte, Double Double, and Kona Areas

## 6.2.1 Lithologies

### Felsic Gneiss

Felsic gneiss comprises variable quartz, feldspar augen, biotite and muscovite (Figure 7). The felsic gneiss is intercalated with volumetrically minor biotite-feldspar ( $\pm$  quartz  $\pm$  muscovite  $\pm$  amphibole) schist. Typical drill core intervals of biotite-feldspar schist within the dominant augen gneiss package vary in thickness from 0.3 to 10 metres. They represent approximately 30 percent of the rock volume. Felsic gneiss hosts gold mineralization in the Supremo area.



**Figure 7: Quartzo-feldspathic Augen Bearing Gneiss from Supremo Area**  
(Borehole CFD0002 at 144 metres)

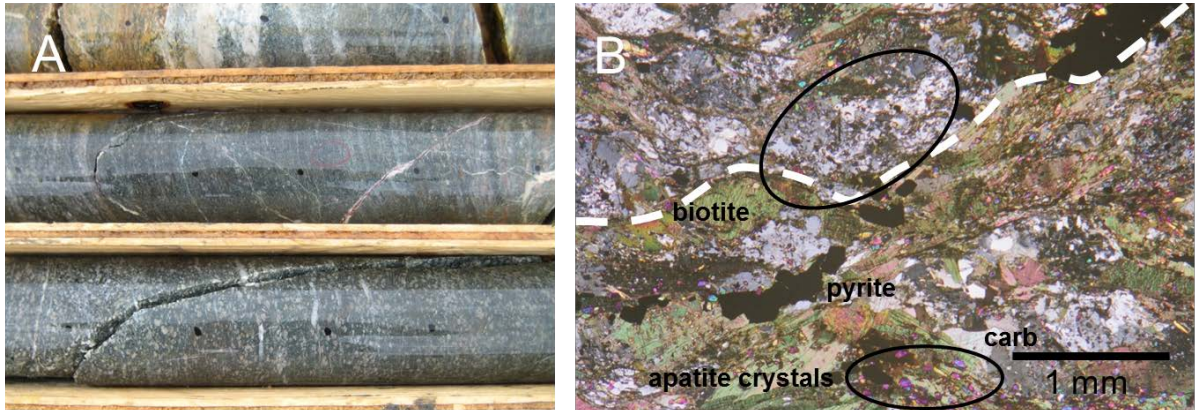
### Biotite Schist

Biotite ( $\pm$  feldspar  $\pm$  quartz  $\pm$  muscovite  $\pm$  carbonate) schist exhibits variable mineralogy and schistose to mylonitic textures (Figure 8). The rocks are variably retrogressed depending on their location relative to areas of metamorphic strain or mineralized intervals.

The schistose texture is defined by interconnected biotite laths up to 1.5 mm in size which wrap around relict and replaced feldspar porphyroblasts. The feldspars vary in size but are generally  $< 2$  mm, and laths of phengitic muscovite occur in close association with biotite. Retrogression of the biotite schist produced chlorite replacement of biotite and exsolution of ilmenite within individual biotite laths. Feldspars are replaced by illite/sericite, carbonate, quartz, and epidote or zoisite.

The biotite schists are locally intercalated with marble bands that range from 0.3 to over 5.0 metres in width. The marble bands increase in volumetric importance toward the top of the sequence, and typically occur in localized groupings where band frequency increases to multiple thin (10 – 30 cm) bands per metre. Carbonate stringers occur throughout the biotite schist package and feldspars are for the most part entirely replaced by carbonate, sericite, and quartz. The biotite schist is the primary host for gold mineralization at Latte and Double Double.





**Figure 8: Biotite Schist in Drill Core and Thin Section**

- A. Biotite Schist in core from Latte. Borehole CFD0012 at 147 metres.  
B. Polished thin section of (A) showing pyrite along the rock fabric and replacement of feldspar by quartz, sericite and carbonate (cross polarized light). White dashed line indicates rock fabric. Circled area in top centre of image highlights quartz-sericite alteration after plagioclase.

### Muscovite Schist

Muscovite schist is mainly composed of quartz, muscovite, sericite/illite, and relict feldspar with a schistose texture which can locally grade to mylonitic. The schistose texture is defined by muscovite up to 2 mm in size which wraps around feldspar porphyroblasts replaced by sericite/illite and quartz, although up to 10 % biotite may be present (Figure 9). Minor cubic brassy pyrite is present as a foliation-concordant feature as seen in the biotite schist. Rare fine grained ilmenite (< 0.1mm) is present along mica foliation, and the minor biotite present is readily replaced by chlorite.

The muscovite schist unit may have schistose or mylonitic texture locally. In contrast to biotite schist, it is rarely laterally traceable across drill sections, suggesting it is the product of a different, less mafic protolith which was sporadically deposited in the pre-metamorphic environment. It occurs at Latte and Double Double within the schistose and gneissic panels.



**Figure 9: Felsic Schist in Drill Core and Thin Section**

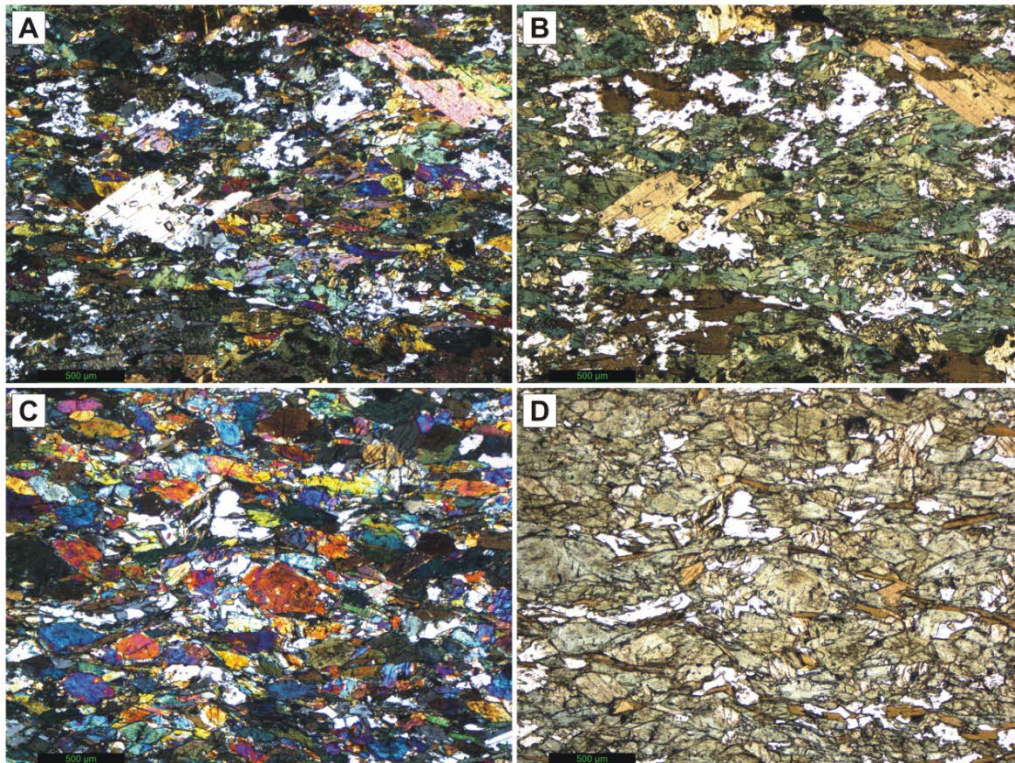
- A. Felsic schist in drill core. Borehole CFD0013 at 161 metres.  
B. Polished thin section of (A) showing biotite and pyrite in a ground mass (gm) of quartz and sericite (plane polarized light).



## Biotite Amphibolite

Thin intervals of amphibolite are present in the upper stratigraphy of the mafic schistose and gneissic package, comprising < 20% of the sequence. Massive amphibolite forms dark green-black units within the biotite schist but has not been observed in close association with muscovite schist. Amphibolite intervals generally contain 80-90% hornblende, 10-20% biotite, and rare plagioclase and quartz. Weak to moderate foliation is defined by alignment of amphibole (Figure 10).

Amphibole is fine grained (< 0.5 mm) while biotite laths are generally larger in size (1 mm). Greenschist-facies retrogression is manifested by coarse epidote after amphibole and weak to moderate chlorite replacement of biotite. Rare leucoxene is observed as an alteration product after very minor ilmenite.



**Figure 10: Thin Section Images of Biotite Amphibolite and Massive Amphibolite**

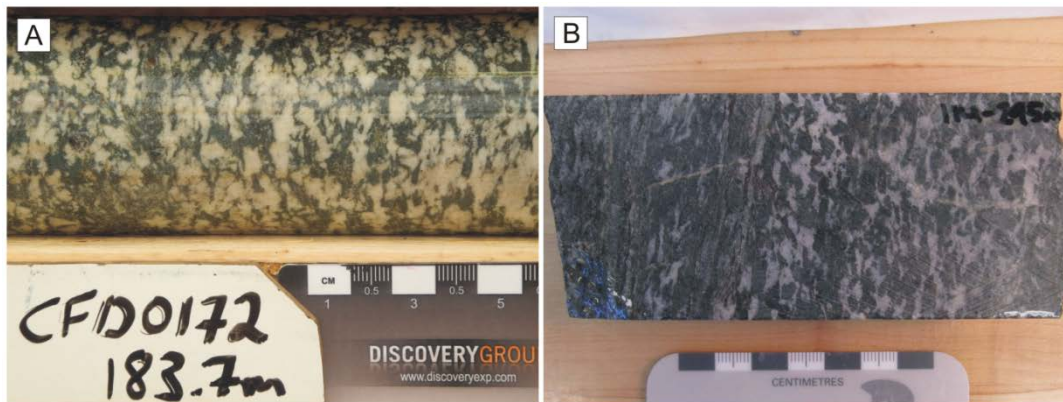
- A. Coarse brown biotite laths and fine grained green hornblende define foliation through the sample. CFD0082 at 170.6 metres, XPL.
- B. Same image as (A), PPL.
- C. Fine grained hornblende comprising >95% of the sample is intermixed with fine laths of biotite. Sample is interlayered with coarse metagabbro. CFD0114 at 296 metres, XPL.
- D. Same as (C), PPL.

## Amphibolite

Amphibolite within the deeper, mafic footwall of the schistose and gneissic package is composed of fine grained hornblende with varying ( $\leq 15\%$ ) biotite content. While visually similar to biotite amphibolite found within the upper portions of the schistose panel, biotite content is marginally lower and the rocks are more Mg-rich. Biotite laths within the amphibolite are up to 0.25 mm in size, and minor quartz and fine grained feldspar is present throughout the rock. In areas of strong retrogression, up to 30% of the biotite is replaced by chlorite, while up to 60% of amphibole is replaced by epidote.

### Interleaved Metagabbro and Amphibolite

Metagabbro intervals are composed of coarse grained hornblende forming as radiating laths or coarse (3-4 mm) subhedral crystals. These units are variably foliated, with weak to nearly mylonitic fabrics (Figure 11). The metagabbros are very Mg-rich, and are interleaved on the metre scale with a geochemically identical amphibolite different to the two previously described.

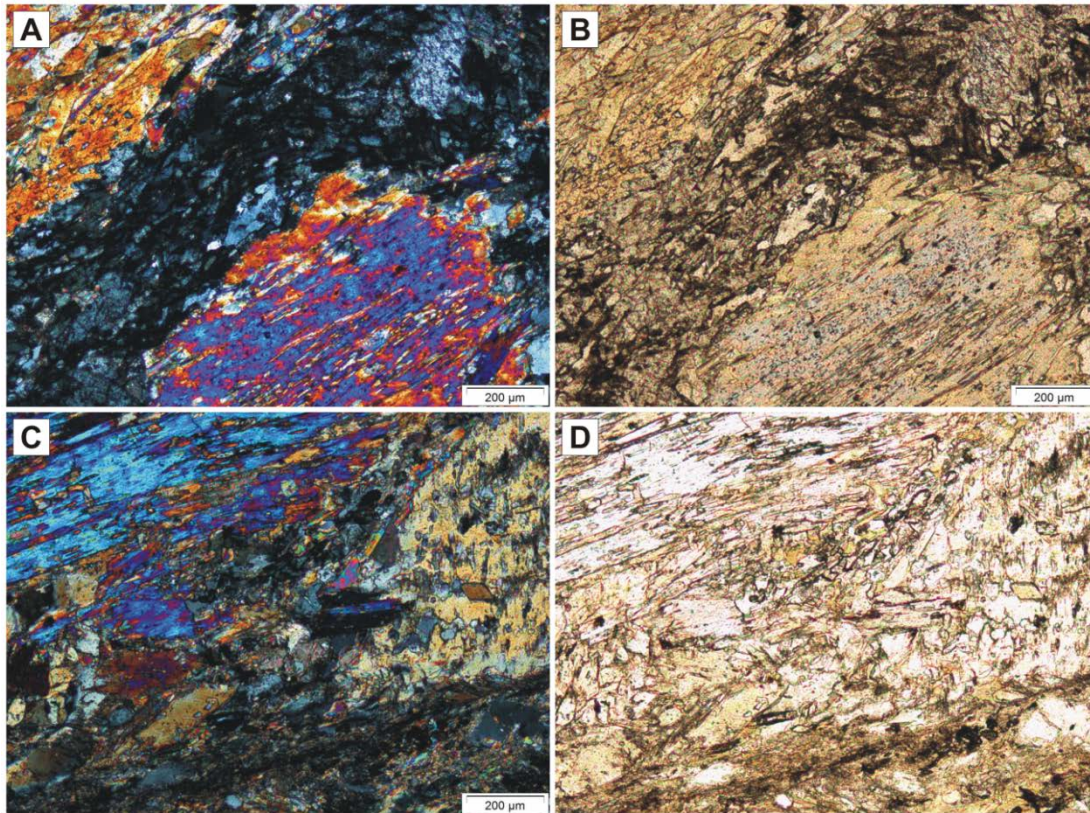


**Figure 11: Drill Core Samples of Metagabbro**

- A. Unfoliated metagabbro from CFD0172 at 183.7 metres.
- B. Variably foliated metagabbro with stronger foliation on left of sample, and coarse domain on right. CFD0114 at 295 metres.

Where the unit displays metagabbroic textures, strong greenschist facies retrogression has completely replaced feldspar and amphibole crystals are retrogressively zoned from magnesiohornblende core compositions to actinolitic compositions at grain margins (Figure 12). Where the unit is composed of fine grained, massive amphibolite, similar zonation is observed, although on a lesser scale. The massive amphibolite is composed of >95% magnesiohornblende to actinolite, with very minor biotite (Figure 12C, D). Trace element geochemical analysis of both units demonstrates that both rocks are from the same source.





**Figure 12: Thin Section Images of Metagabbro**

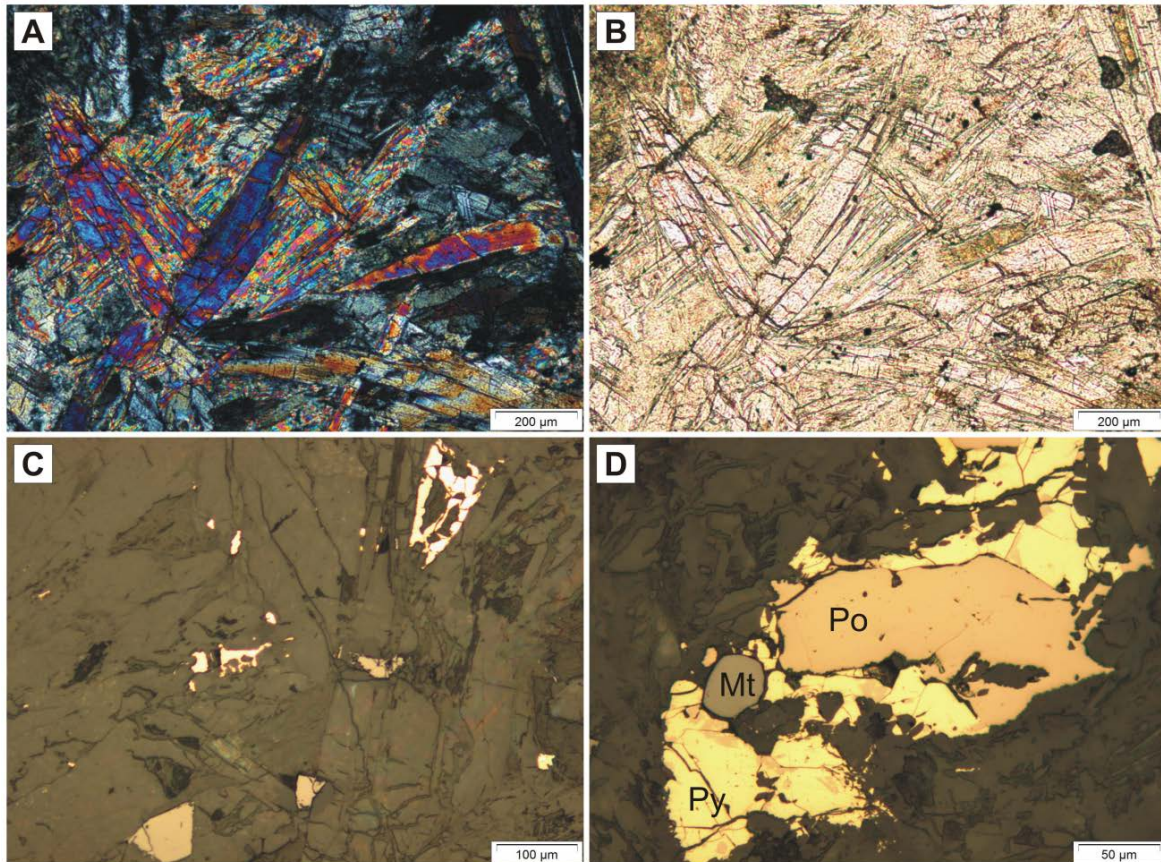
- A. Coarse hornblende crystals with moderate retrogression to actinolite surrounded by chlorite-carbonate. CFD0114 at 295 metres, XPL.
- B. Same as (A), PPL.
- C. Shredded amphibole crystal with coarse actinolite. CFD0010 at 180 metres, XPL.
- D. Same as (C), PPL.

### Ultramafics

Ultramafic rocks are found at the Coffee project as both thin, 1-2 metre, highly-deformed talc schists, and as an approximately 20 metre thick panel within the Snowcap assemblage schistose rocks at the Latte zone. The thin and highly strained ultramafics are found throughout the schistose-gneissic panel at Coffee and are altered to talc, magnesite, and serpentine. They commonly contain high-chromium magnetite, and sulphides including pyrite and pyrrhotite (Figure 13, Figure 14).

The 20 metre thick panel of ultramafic is found within the west-central region of the Latte zone. This panel is strongly serpentinized and contains coarse high-chromium magnetite, Mg-chlorite, talc, and serpentine (Figure 15). The unit is interpreted as a slice of Slide Mountain assemblage serpentinite which was tectonically emplaced during low-angle Jurassic thrust faulting. No mineralization is observed within this unit, although significant mineralization is intersected at the exterior margins of the panel. It is currently thought that the ultramafic panel may act as an aquitard to mineralizing fluid at Coffee.





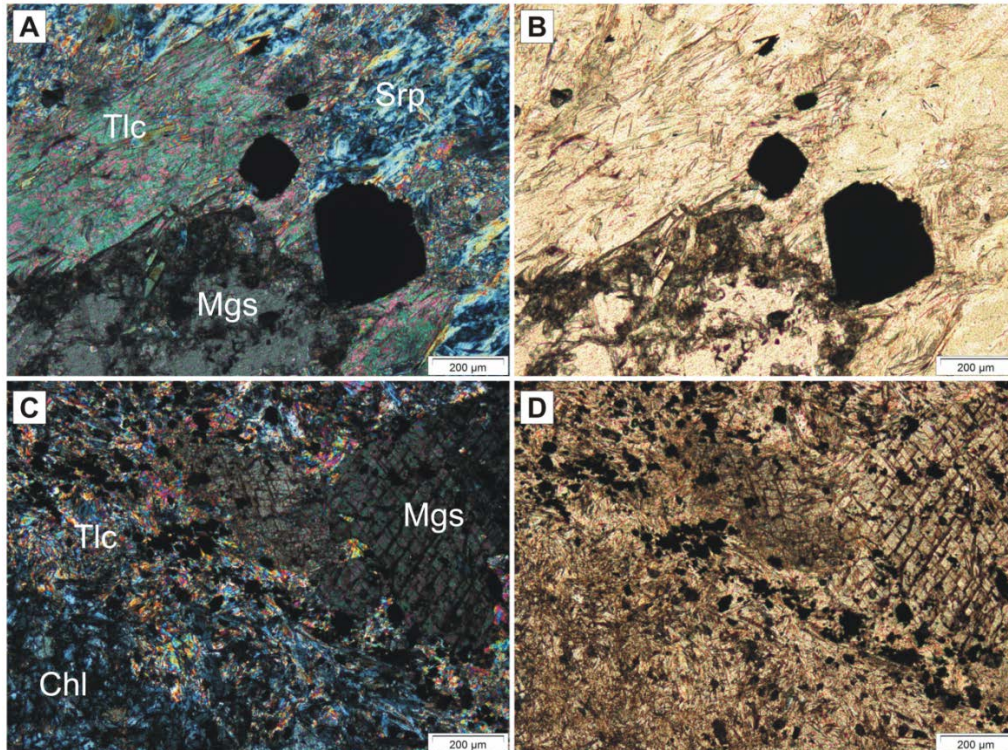
**Figure 13: Thin Section Images of Ultramafic Slivers from CFD0035 at 253 Metres**

- A. Laths of actinolite in close association with talc and chlorite, XPL.
- B. Same as (A), PPL.
- C. Reflected light image of fine sulphides within the ultramafics: visible pyrite and pyrrhotite, RL.
- D. Zoom of intergrown pyrite and pyrrhotite with accessory magnetite, RL.



**Figure 14: Core Box Photo of a Thin Ultramafic Sliver in CFD0164 from 31.8-36.14m**



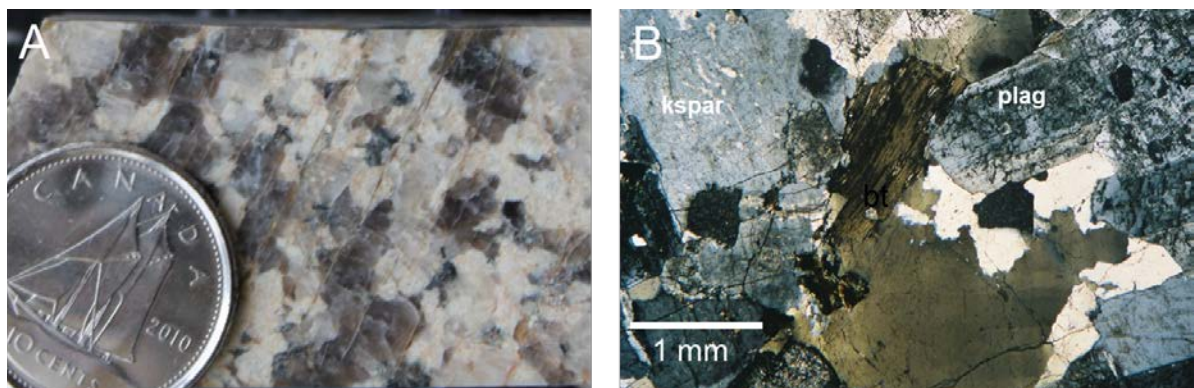


**Figure 15: Thin Section Images of Serpentinized Ultramafics**

- A. Coarse crystals of magnesite rimmed by talc within a serpentine matrix. CFD0082 at 135 metres, XPL.
- B. Same as (A), PPL.
- C. Coarse magnesite crystals with fine sulphide, talc, and chlorite in the groundmass. CFD0113 at 120.4 metres, XPL.
- D. Same as (C), PPL.

## Granite

Equigranular granite underlies the southern third of the Coffee project area. This rock consists of coarse plagioclase, potassium feldspar, quartz, biotite, and hornblende (Figure 16). The contact between the schistose and gneissic rock panel and the granite itself occurs along the northern margin of the granite on the Coffee Creek fault in the deposit area. Only minor hornfelsing of the schistose and gneissic panel has been observed.



**Figure 16: Coffee Creek Granite in Drill Core and Thin Section**

- A. Fresh granite exhibiting a weak foliation. Borehole CFD0053 at 128 metres.
- B. Polished thin section of (A), showing biotite, plagioclase, potassium feldspar, and quartz, XPL.

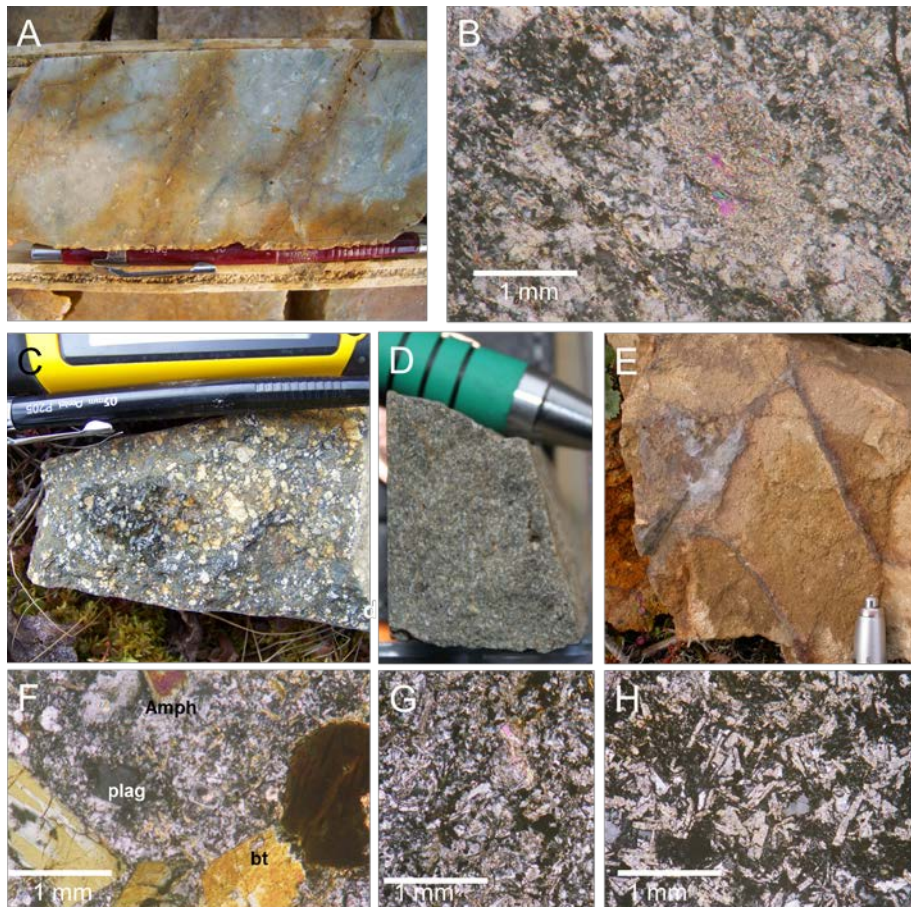


Limited geochemical study of the granite indicates that it is sourced from the same parent melt as a suite of dacitic dykes at Coffee. The granite itself is geochemically constrained as a ferroan, calc-alkalic or alkali-calcic, peraluminous A-type granite.

## Dykes

Dykes of both andesitic and dacitic compositions are found at all gold prospects at Coffee. Andesite dykes are typically aphanitic with feldspar phenocrysts generally 0.3 – 1 mm in size (Figure 17). Local and rare andesite porphyries are intersected with euhedral feldspar phenocrysts up to 3 mm in width which are easily visible in hand sample. Preserved feldspar crystals occasionally exhibit polysynthetic twinning. The groundmass of the dykes is extremely fine grained and contains fine feldspar crystals and a large clay component, dominated by kaolinite.

Dacite dykes are almost exclusively aphanitic. Feldspar phenocrysts are rarely visible in hand sample, occasionally reaching 1mm in size (Figure 17). The dykes are a light grey colour and are usually bleached white by pervasive clay alteration, sometimes obscuring primary igneous textures. Oxidized dacite dykes are easily distinguished by a Liesegang-banded oxidation pattern.



**Figure 17: Dykes in Grab Samples, Drill Core, and Thin Section**

- A. Dacite dyke in drill core. CFD0006 at 68.8 metres.
- B. Polished thin section of dacite showing fine grained quartz and sericite. CFD0009 at 27 metres, PPL.
- C. Feldspar (andesite) porphyry. Collected from a trench in the Supremo area.
- D. Diorite grab sample. Collected at 584325mE, 6974769mN.
- E. Fluid altered diorite. Collected at 584218mE, 6974489mN.
- F. Polished thin section of (C), PPL.
- G. Polished thin section of (D), and likely a fine-grained equivalent of (C), PPL.
- H. Polished thin section of (E), and likely a fluid altered equivalent of (C), PPL.

## 6.2.2 Structural Geology

Rocks at the Coffee Project were deformed by a series of three YTT-wide tectonic events (Table 3). Gold mineralization at Coffee was deposited during the latest Cretaceous event.

**Table 3: Tectonic Events at Coffee**

Event	Age	Structures	Mineralization
Extension	Cretaceous	Brittle Fractures Dextral normal faults	Main Coffee gold mineralization
YTT-Laurentia Collision	Jurassic	East-west shears and thrust faults Slices of ultramafic rocks	Quartz veining, sericite alteration
Klondike Orogeny	Pre-late-Permian	Metamorphic gneissosity and schistosity	

(Berman et al., 2007; Buitenhuis, 2014; Mackenzie and Craw, 2013)

### Metamorphic Foliation

Gneissose and schistose metasedimentary rocks at Coffee contain a shallowly-to-moderately southwest dipping penetrative cleavage, as described for each lithology in section 6.2.1 ( $S_2$  foliation of Berman et al. (2007)). The foliation becomes steeper-dipping to the south. Structural data collected from oriented drill core show the following average orientations:

- Supremo: 20-40 degrees to the south-southwest (190-230 degrees)
- Latte: 35-55 degrees to the south-southwest (180-210 degrees)
- Double Double: 35-65 degrees to the south-southwest (170-200 degrees)

### Jurassic Shearing

As the YTT-Laurentia collision continued and the Slide Mountain Ocean was completely closed, the rocks in the Coffee area developed roughly east-west brittle-ductile shears and younger rocks were thrust north over older rocks. This deformation corresponds to the  $D_3$  deformation of Berman et al, 2007. This deformation is best seen in the more mafic rocks of the southern schistose panel where intervals of mylonitic rocks are traceable between multiple sections. The 20m thick lens of ultramafic rock north of Latte was emplaced during this thrusting.

### Brittle Fracturing and Faulting

Following post-collision uplift and erosion in the YTT (Berman et al., 2007) steep-to-vertical brittle fractures and normal faulting affected all lithologies at Coffee. These brittle structures are the hosts to gold mineralization at Coffee. This deformation corresponds to the  $D_5$  deformation of Berman et al. (2007). The faults and fractures are splays of the regional Big Creek fault to the southeast of the property. The faults may have locally followed pre-existing Jurassic shear zones. The faults both deflect along the northern edge of the Coffee Creek granite and cut the granite and so are syn-to-post granite emplacement ( $\pm 98$ Ma). Dacite and andesite dykes follow these brittle fractures.

Gold-mineralized structures comprise strike-extensive planar zones with a range of deformation intensity from crackle breccia/stockwork fracture systems through to polyphase high-energy matrix-supported breccias with intensely altered and reworked clasts. Individual mineralized structures exhibit localized flexures, anastomosing patterns and pinch and swell geometries over scales of tens to hundreds of metres. However, both in cross section and along strike, gold mineralization, elevated arsenic and antimony, alteration, oxidation, deformation intensity and the presence of subparallel pre-mineralization dykes display continuity.



Felsic (dacitic) to intermediate (andesitic) dykes crosscut all other lithologies and generally strike in either a northerly direction (northwest to northeast striking in the Supremo, Double Double, and eastern Latte zones) or an easterly direction (east to southwest striking in the Western Latte and Kona zones). The dykes commonly occur within the mineralized structural deformation zones. The dykes are commonly deformed and carry gold mineralization, especially along their margins, clearly indicating they pre-date mineralization. These observations suggest that the dykes exploited (intruded along) older pre-existing structures and in turn were deformed by subsequent reactivations of those structures during later deformation events. Furthermore, the dykes may have provided additional rheological contrast which focused strain, fluid flow, and sulphide and gold mineralization.

Structural measurements of vein orientations and deformation fabrics from oriented drill core provide hard data on the structural geometries, but are often not available in the mineralized zones due to the incoherent nature of fractured and often clay-altered core. Where measured, key structural orientations from within mineralized zones, including dominant fracture orientation, internal fracture or shear fabric, breccia margin, vein or dyke margin orientation, are used to interpret mineralization geometry.

The planar gold mineralized zones at Coffee exhibit a number of strike orientations, dominated by east-west, north-south, and east-northeast–west-southwest strike directions. Where not yet drilled, mineralized structures can be traced by: 1) the orientation of linear gold-in-soil anomalism (surface expression of ‘day-lighting’ bedrock structures), 2) the orientation of linear magnetic lows, and rarely by 3) linear topographic structures including erosion-resistive (T3) and erosion-recessive (Latte and Double Double).

The Latte zone comprises an east-west trending steeply to moderately south-dipping (65 degrees in the west to 85 degrees in the east) shear zone characterized by brittle deformation that overprints older ductile strain fabrics, consistent with a multiply-reactivated shear zone environment. The Latte structure can be traced over 8 kilometres to the east and west of the Latte gold zone, and appears to mark the southern boundary of gold mineralization in the Latte-Supremo-Double Double area (although exploration south of the Latte structure has not been exhaustive).

The Latte North zone comprises a northeast-striking shear zone dipping about 60 degrees to the southeast. It appears to be a splay from the Latte zone.

The Supremo zone comprises a corridor of steeply dipping (70 degrees to 90 degrees) north-south trending structures, the “T structures”, which crosscut the augen gneiss host rock. T3 is the dominant structure in this orientation. Step out drilling completed in 2013 indicates that T2, T3 and T4 all curve to the west as they approach Latte from the north and merge with the Latte zone to the south. T5 appears to merge with the Double Double Zone to the south. The T7 structure has not been connected to other zones via drilling but soil geochemistry and geophysics suggests that it connects with the Double Double Zone to the south.

The Double Double zone is hosted within a steeply north-dipping (80 degrees to 90 degrees) east-northeast–west-northwest trending structure located 600 metres along strike from the eastern margin of the Latte Zone. The Double Double structure is characterized by brittle deformation of the host metasedimentary/ metavolcanic stratigraphy, without the pre-existing ductile fabric seen in the Latte Zone.

The Sumatra zone consists of two structures: a southwest-striking main structure dipping about 75 degrees northwest and a northern, east-striking structure dipping about 60 degrees south. The

northern structure merges into the main structure. The northeast end of Sumatra appears to curve north and merge into the Supremo T2 zone.

Granite-hosted gold prospects located west-southwest of Supremo (Kona, Espresso, and Americano) are hosted both along strike to the west of the Latte structure, and in related splays and cross-structures. These zones exhibit similar steeply-dipping planar structures with overlying linear gold-in-soil anomalies. Unlike Supremo, Latte, and Double Double, these western zones are hosted within the Coffee Creek Granite. These zones may represent an array of faults connected by linking structures; further work is needed to better define these structures.

## 6.3 Mineralization

Exploration drilling completed from 2010-2013 has led to the discovery of significant gold mineralization in over nineteen separate areas of the Coffee gold project: Supremo T1, Supremo T2, Supremo T3, Supremo T4, Supremo T5, Supremo T7, Latte, Latte North, Sumatra, Arabica, Latte Extension, Double Double, Americano West, Americano, Espresso, Kona, Macchiato, Cappuccino, and Sugar (Table 4).

**Table 4: Main Mineralized Zones Investigated by Drilling on the Coffee Project Area**

Zone	Host Rocks	Summary Description
Supremo	Augen Gneiss	Narrow gold-bearing brittle structures with gold commonly hosted in matrix-supported breccia and dacite dykes. Gold associated with quartz-sericite-pyrite alteration.
Latte	Biotite-feldspar Schist, Augen Gneiss	Gold is hosted in zones of brecciation and strong fracturing as well as areas with pervasive sericite alteration and strongly disseminated sulphides. Some high-grade zones associated with quartz vein breccias. Dolomite-illite/sericite-arsenian pyrite sulphidizes biotite laths. Potential remobilization of gold to other structures.
Double Double	Augen Gneiss	Narrow gold-bearing brittle structures hosted in matrix-supported breccia including dacite porphyry fragment breccia. Anastomosing quartz vein networks and microbreccia associated with high-grade. Local strong disseminated sulphide mineralization.
Kona	Granite	Broad zones of fracture-controlled and disseminated pyrite associated with dacite dykes. Gold hosted in quartz-sericite altered granite. Iron oxides after disseminated pyrite, pyrite veinlets, stockworks and sooty-pyrite rich shear zones.
Americano, Americano West and Espresso	Granite	Zones of fracture-controlled and disseminated pyrite. Gold hosted in quartz-sericite altered granite similar to Kona. Stibnite noted at Americano West.
Macchiato and Cappuccino	Augen Gneiss	Strong oxidation, silica flooding, abundant limonite and brecciation noted at Macchiato.
Sugar	Granodiorite	Sooty pyrite with arsenopyrite, pyrrhotite and/or stibnite in subvertical quartz-carbonate veins with silica-sericite alteration as halos. Gold hosted in granodiorites to quartz monzodiorites.
Sumatra	Biotite-feldspar Schist, Augen Gneiss	Gold hosted within two structures dipping in opposite orientations which intersect in the eastern portion of the zone. Strong oxidation after both disseminated, foliation controlled mineralization as well as common polyphase brecciation.
Arabica	Augen Gneiss	Strong oxidation, silicification within moderately-to-steeply east dipping structural corridors. Mineralization characterized by strong limonite-hematite.

### 6.3.1 Supremo

The Supremo Zone is hosted in the northern augen gneiss package and consists of a number of discrete north-to-northeast trending, steeply-dipping structures (T1 to T8), spaced 50 to 100 metres apart, based on linear gold-in-soil anomalies and extensive drilling.

Core drilling from 2010–2013 and reverse circulation drilling from 2011–2013 focused on significant high-grade gold mineralization identified in the north-northeast–trending steeply east-dipping T-structures associated with breccias and dykes. From east to west the main drill-tested T-structures are: T1- T2 (1100 metres strike length, open north and south), T3 (2,250 metres strike length, open to the north, merges with Latte to the south), T4 (1,650 metres strike length, merges with T3 to the north and Latte to the south), T5 (1,850 metres strike length, open to the north, merges with Double Double to the south), and T7 (900 metres strike length, open north and south).

The T-structure gold corridors are 5 to 30 metres wide and mineralized intervals are associated with intense clay and sericite alteration in addition to abundant (typically oxidized) pyrite.

The gold mineralization at Supremo is generally characterized by two distinct styles: brecciated mineralization, and biotite replacement mineralization. The highest grades are associated with polyphase hydrothermal breccias (Figure 18a). This style of gold mineralization generally yields grades between 5 and 60 grams of gold per tonne (gpt gold).

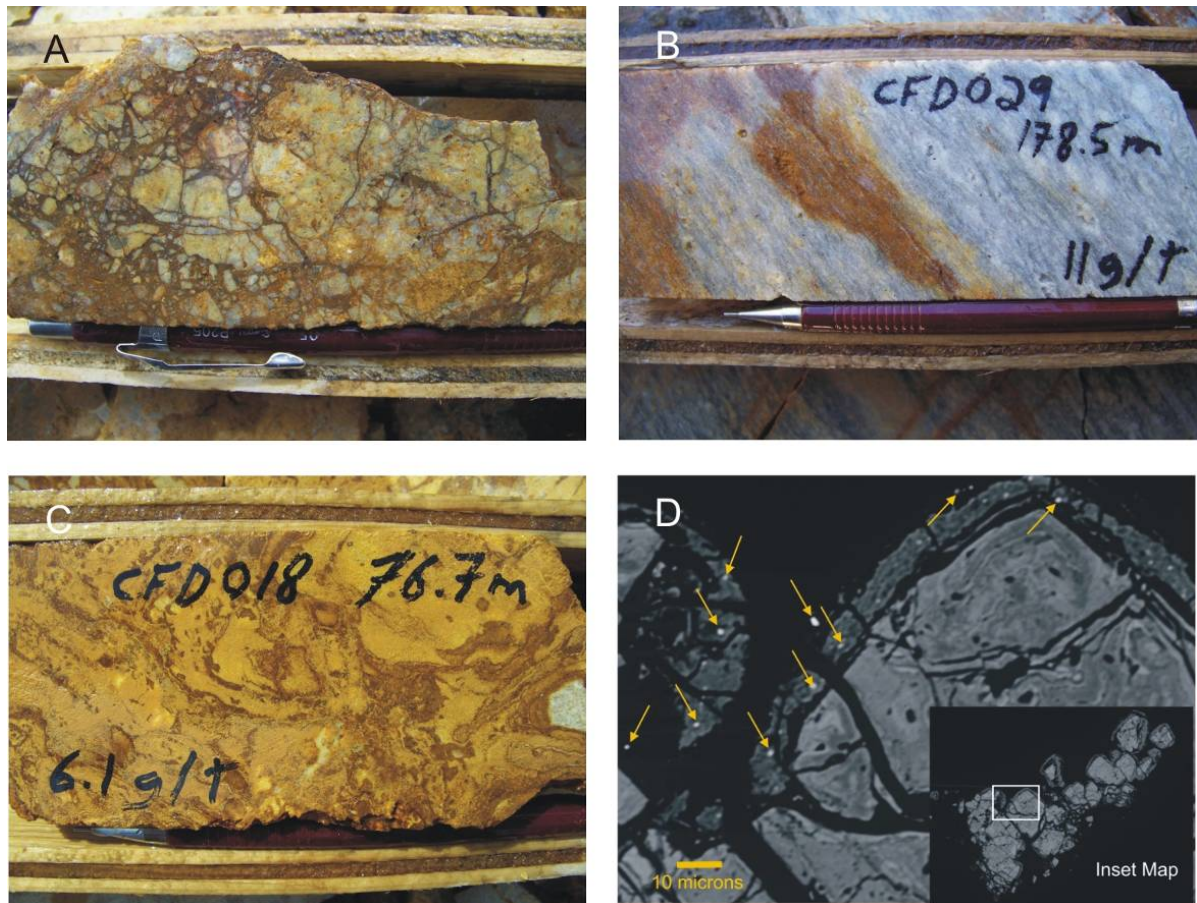
Breccia textures range from mature matrix-dominant phases with rounded fragments to wall-rock crackle breccias, and matrix compositions range from incompetent limonite-clay material to strongly silicified material. Angular to subrounded clasts range from 0.5 to 3 centimetres in diameter and consist predominantly of highly silicified fragments and subordinate altered wallrock and dacite porphyry fragments. Brecciated clasts occur locally, indicating multiple phases of brecciation.

The lower grade gold mineralization is associated with pervasive hydrothermal alteration of non-brecciated gneissic host rock replacing biotite with pyrite and yields grades ranging between 2 and 10 gpt gold (Figure 18b). The hydrothermal alteration is characterized by an overall removal of potassium and aluminum with the addition of sulphide and silica.

Andesite and dacite dykes appear to have utilized the same structures as mineralizing fluids, but they are themselves altered and locally auriferous (Figure 18c). In other cases, altered dykes with elevated arsenic and antimony are barren. Some dyke margins appear to focus brecciation, potentially due to rheological contrast. The relationship between dykes and the auriferous hydrothermal system remains poorly constrained.

Preliminary portable infrared mineral analyser (PIMA), ASD TerraSpec portable infrared mineral spectroscope, and electron microprobe work indicate that illite and iron-carbonate compose part of the alteration mineral assemblage associated with gold at Supremo. Micron-scale gold is strongly associated with pyrite and free gold grains are found within the oxidized rims and cracks within pyrite grains, in addition to various growth bands within the pyrite grains (Figure 18d).

The microscopy and microprobe work also reveal micron-sized crystals of barite associated with gold and trace amounts of iron-barium arsenate, an iron-calcium-silver-phosphorus mineral phase, monazite and zircon in alteration zones.



**Figure 18: Gold Mineralization Textures at Supremo**

- A. Mineralized crackle breccia. Borehole CFD0001, from 19.6 to 20.0 metres with 14.35 gpt gold.
- B. Pervasively altered, auriferous augen gneiss. Note the “pitted” appearance of feldspar augen. Borehole CFD0029, from 178 to 179 metres with 11.0 gpt gold.
- C. Mineralized, clay altered dacite dyke. Borehole CFD0018, from 76 to 77 metres with 6.1 gpt gold.
- D. Backscatter image of pyrite grain in Supremo breccia showing the extremely fine-grained nature of gold (denoted by arrows) and its association with pyrite. Linear trains of gold grains suggest gold was likely precipitated with pyrite and captured within the pyrite structure and later released during oxidation of the pyrite rim. Borehole CFD0001, from 24 to 25 metres with 31.9 gpt gold.

### 6.3.2 Latte

Drilling across an east-west trend of gold-in-soil anomalies at Latte has intersected gold mineralization beginning at surface (Figure 19). This linear trend overlies the Latte and Latte North structures. Latte consists of a stacked set of moderately-to-steeply south-southwest dipping, east-southeast striking brittle-ductile structures, while Latte North splays off from the main Latte structure, dipping moderately to steeply to the southeast and striking to the northeast. No shear fabric or observable high strain is visible in association with the steep and mineralized Latte structures. All structures remain open at depth, and step-back drilling during the 2011 season intersected mineralization at depths of up to 450 metres-below-surface.





**Figure 19: Expression of the Latte Structure at Surface Looking East (Section 583250mE)**

The western portion of the Latte zone is dominated by broad regions of disseminated mineralization found throughout a wide panel of biotite schist. The western structures strike  $\sim 100^\circ$  and contain five or more ore shoots which merge and separate along section. To the east these structures separate, with a splay striking  $\sim 85^\circ$  which dips near vertically to the south. The structures continue to the east and eventually merge into the complex Connector zone, where the Supremo north-south structures and the east-west Latte and Double Double structures converge (Figure 6 and Figure 27). Total traceable length of the mineralized Latte structure is in excess of 2,100 metres. Latte North displays identical mineralization textures as Latte Main, however the structures strike at  $\sim 45^\circ$  and dip  $\sim 60^\circ$  to the southeast. Latte North currently splays away from the main Latte corridor for a strike length of 275 metres.

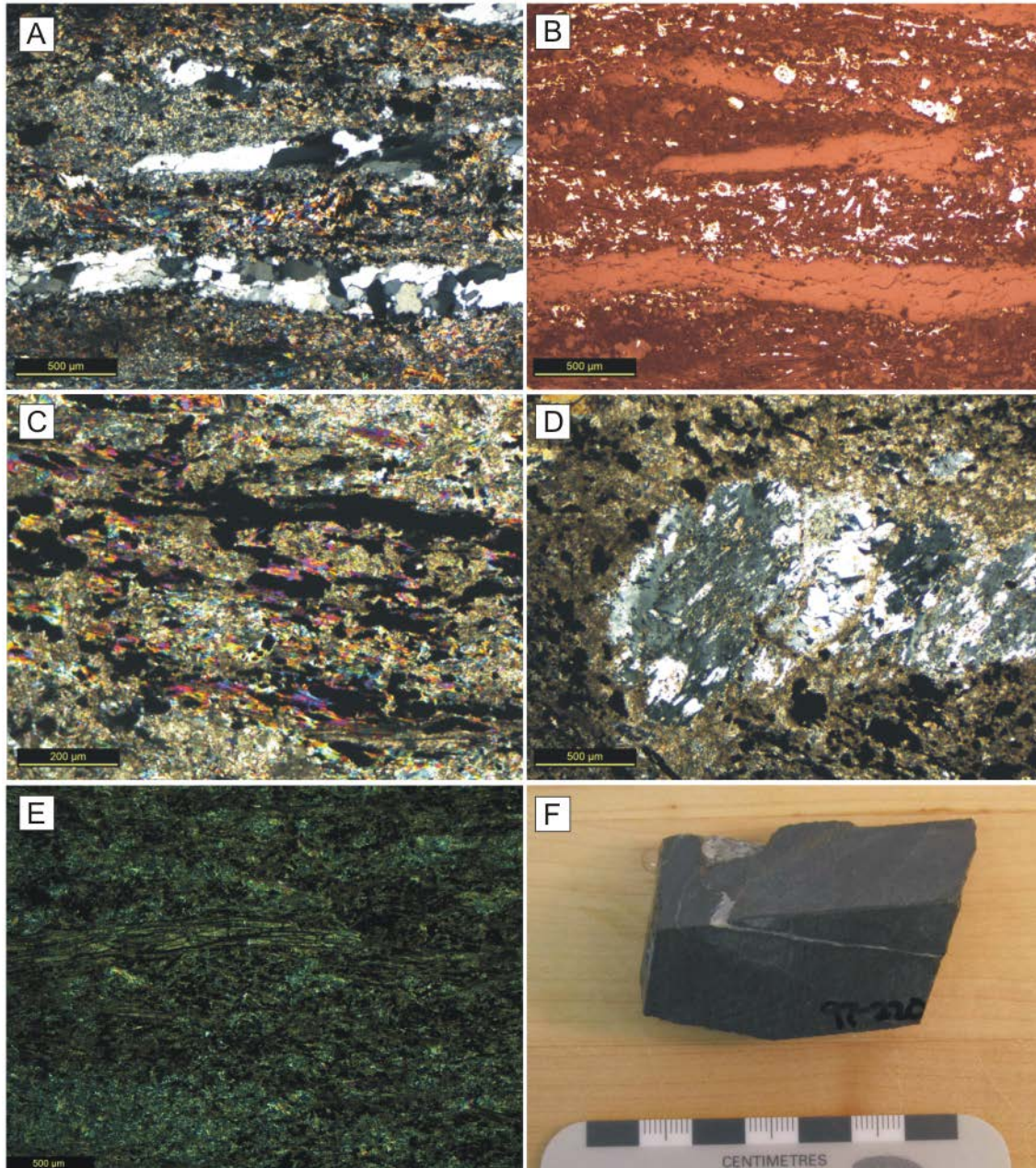
Mineralization at Latte consists of multiple distinct styles of mineralization beginning with disseminated gold-bearing arsenian pyrite, overprinted by later brecciation and late fluid ingress (Figure 20). Mica-rich rocks are the main host for gold, with a three phase mineral reaction resulting in gold precipitation. Gold-bearing mineralizing fluid rich in  $\text{CO}_2$ -As-Sb and S reacts strongly with Fe-bearing biotite within the biotite schist at Latte. A sulphidation reaction proceeds, where Fe within the biotite is leached to form fine-grained arsenian pyrite, illite, and dolomite which pseudomorphously replace the parent biotite lath (Reaction 1). Titanium within the parent biotite is removed and incorporated in the hydrothermal illite, as well as hydrothermal rutile. A third white mica phase grows out of solution as fine laths which rim some mineralization-phase white mica.

#### Reaction 1: Simplified Mica Sulphidation Reaction



In high-grade intervals, this reaction runs to completion with no biotite preserved. Areas which did not experience the same levels of fluid flow retain relict biotite laths.



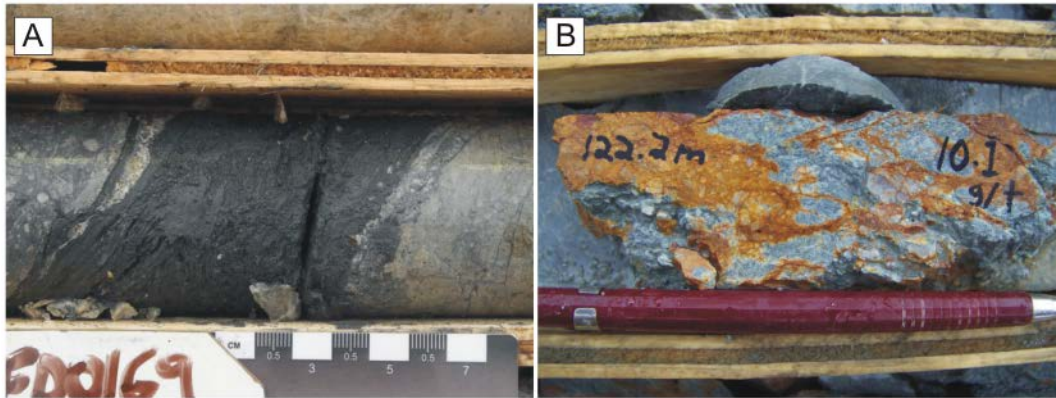


**Figure 20: Disseminated Mineralization within the Latte Zone**

- A. Finely disseminated arsenian pyrite along relict micaceous foliation. CFD0164 at 464 metres, XPL.
- B. Same as A, RL.
- C. Detail of sulphidized mica with fine arsenian pyrite along relict foliation planes. CFD0164 at 469 metres, XPL.
- D. Relatively fresh feldspar porphyroblast surrounded by sulphidized mica and dolomite. CFD0164 at 469 metres, XPL.
- E. Strong disseminations of fine-grained arsenian pyrite. CFD0097 at 220 metres, XPL.
- F. Hand sample image of E.

Brecciated intervals are common at Latte, with fine sulphide and clay minerals forming the matrix to angular-to-subrounded clasts of wallrock. These “sulphide-matrix” breccias are generally immature and usually appear as concentrations of very fine “sooty” arsenian pyrite with a steel grey

colouration (Figure 21). Sulphide content within the matrix of these breccias can be  $\geq 20\%$ . These brecciated intervals are best preserved at depth, where oxidative meteoric fluids have not completely altered the matrix to clay and oxidized the contained sulphides. Thin quartz-carbonate veinlets which precipitated extremely fine gold-bearing arsenian pyrite along their margins are interpreted to be of the same phase as the sulphide-matrix breccias. There is potential for significant remobilization of gold from disseminated intervals due to continued and intense fluid-rock interaction.



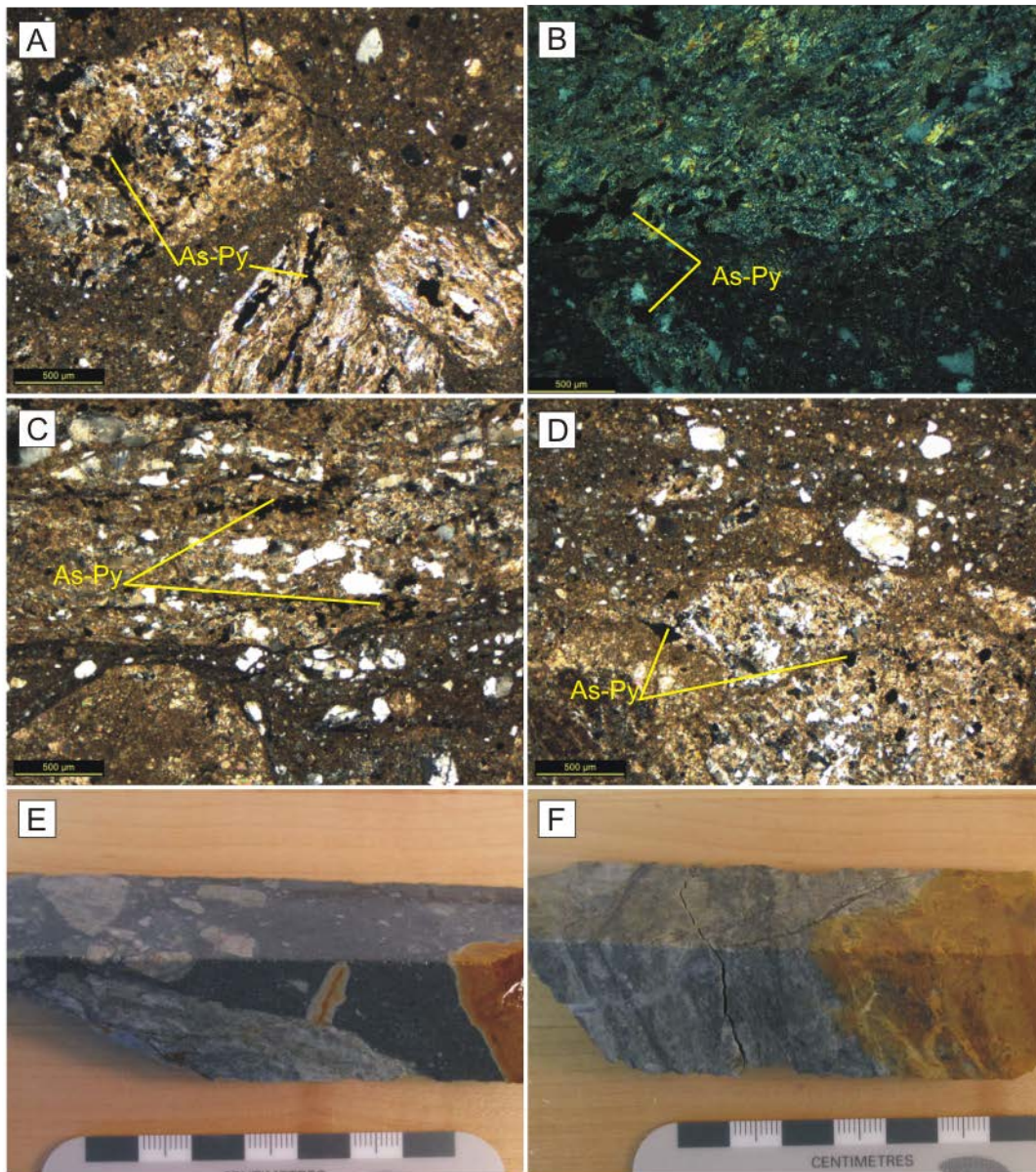
**Figure 21: Core photographs of Latte Zone Pyritic Faults and Sulphide-matrix Breccia**

- A. Pyritic fault in CFD0169 at 237.8 metres.
- B. Sulphide-matrix breccia from CFD0010 at 122.2 metres.

Late breccias are also common, with angular-to-subrounded clasts of mineralized wallrock set in a matrix of rock flour and silica (Figure 22). These breccias exhibit both tectonic and fluid textures and can be greatly comminuted, and locally polyphase. No additional mineralization is observed within these breccias.

Mineralization at Latte is hosted exclusively by schistose rocks or breccias. Within the lower mafic footwall at Latte, amphibole-rich rocks are dominant. Mineralized intervals within this panel are usually restricted to narrow, generally high-grade intersections which represent thin slivers of biotite schist hosted within amphibolite. Amphibole-dominant host rocks do not react with the mineralizing fluid, impeding wallrock sulphidation. The interconnectivity of biotite laths within the schistose rocks promotes reactive fluid flow: laths act as a channel for the sulphidizing fluid, which pervades throughout the schistose host and reacts with the biotite.





**Figure 22: Late Brecciation of Mineralized Intervals at the Latte Zone**

- A. Clasts of mineralized wall rock hosted by a super-fine rock flour/silica matrix. CFD0114 at 162 metres, XPL.
- B. Same as A, XPL.
- C. Breccia corridor with super-fine rock flour/silica matrix and mineralized clasts of wall rock. CFD0097 at 30 metres, XPL.
- D. Same as C, XPL.
- E. Hand sample of A, B.
- F. Hand Sample of C, D.



### 6.3.3 Double Double

The Double Double Zone trends east-northeast with a known strike length of 600 metres, dips steeply to the north and consists of a number of discrete high-grade strands of mineralization up to several metres wide. Host rocks are augen-bearing gneissic rocks with interleaved biotite-feldspar-quartz ( $\pm$  muscovite  $\pm$  amphibole) schist. The gold mineralization at Double Double appears to be structurally controlled and associated with a north-easterly trending splay off the main Latte structure.

Gold-rich intervals at Double Double are characterized by relict schistose to mylonitic textures overprinted by mottled silica and sericite alteration in addition to limonite-filled microfracture networks and oxidized pyrite cubes. Breccia domains locally exceed 50 percent by volume within gold zones, characterized by silicified fragments as well as strongly altered wallrock and porphyry dyke clasts (Figure 23a).

Some of these fragments exhibit rounding and imbrication in addition to textures consistent with re-fragmentation of earlier breccia events (i.e., polyphase breccia). Networks of anastomosing chalcedonic silica veins with local microbreccia domains within the veins have been noted in the high-grade intervals (Figure 23b).

Similar to the Supremo Zone, gold at Double Double is micron-scale (Figure 23c), and illite has been detected by infrared spectroscopy within the mineralized intervals. Other alteration minerals observed at Double Double include sericite, epidote, leucoxene, hematite, and carbonate.

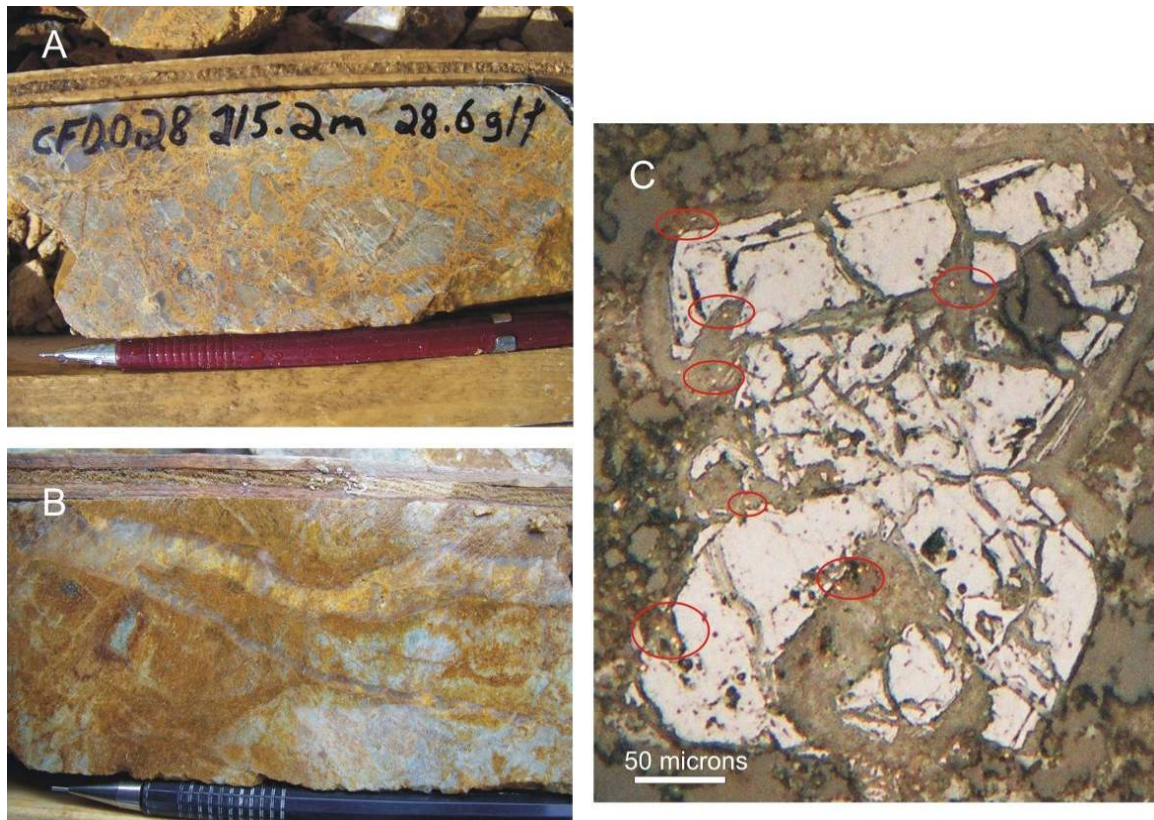
### 6.3.4 Kona

Drilling in the Kona Zone was designed to investigate gold-in-soil anomalies and encountered a different style of mineralization hosted in granitic rocks. The gold mineralization is hosted in near-vertical brittle structural zones directly underlying gold-in-soil anomalies.

The Kona Zone is hosted in equigranular granite and consists of east-northeast trending, steeply south-dipping stacked structures. The gold structures are associated with narrow, less than 5 metres wide, sparsely feldspar phenocrystic to aphanitic andesite to dacite dykes.

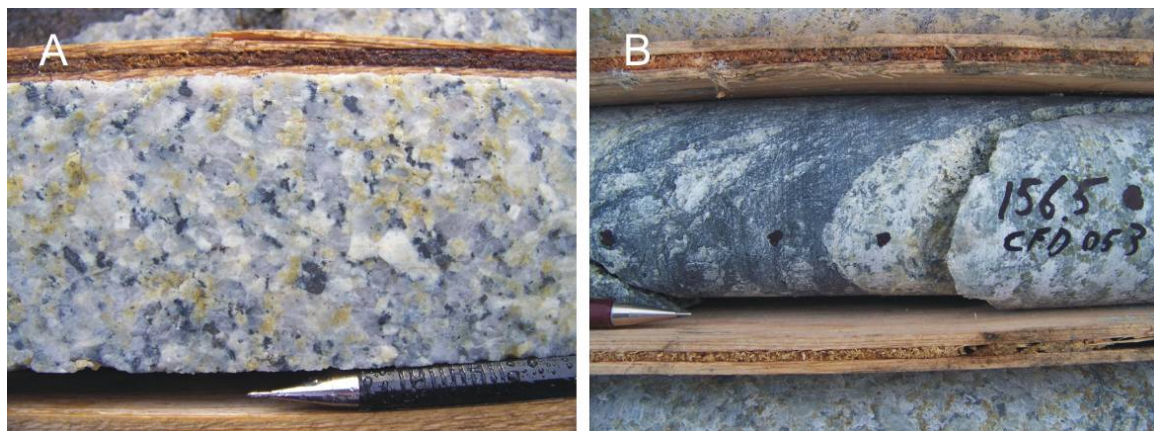
Alteration typically consists of sericite, clay and limonite, with illite being detected during reconnaissance PIMA work at Kona. Sulphide is dominated by sooty pyrite, which typically replaces ferromagnesian minerals (Figure 24a), and also occurs as veins/veinlets or fracture fill, and in sulphide-matrix fault breccias (Figure 24b).

Minor realgar and orpiment have both been observed in reverse circulation cuttings from Kona during the 2011 drill program.



**Figure 23: Gold Mineralization Textures at Double Double**

- A. Cement supported silicified-clast breccia. Borehole CFD0028, from 215 to 216 metres with 28.6 gpt gold.
- B. Silica vein network cutting intensely silicified host rocks. Borehole CFD0090, from 105 to 106 metres with 120.25 gpt gold.
- C. Micron-scale gold (circled in red) associated with fractures within pyrite and pyrite grain rims. Borehole CFD0027, from 156 to 157 metres with 14.75 gpt gold.



**Figure 24: Gold Mineralization Textures at Kona**

- A. Quartz-sericite altered granite; with sulphide mineralization (steel grey mineral) replacement of amphibole and biotite. Borehole CFD0053, from 172 to 173 metres with 9.54 gpt gold.
- B. Sulphide-matrix fault breccia cutting granite. Borehole CFD0053, from 156 to 157 metres with 0.94 gpt gold.

### 6.3.5 **Americano, Americano West and Espresso**

The Americano area is underlain by granite and comprises two parallel northeast trending linear gold-in-soil trends totalling more than 4 kilometres in length. These two trends become linked to the east by a north by northeast trending gold-in-soil anomaly informally known as the Americano “link” structure.

Widely-spaced boreholes were drilled at Americano in 2010–2011 in order to test for the presence of steeply-dipping gold-bearing brittle structures analogous to the nearby Kona gold zone. The Espresso zone is located between Kona and Americano, associated with a large gold-in-soil anomaly. This area was tested with limited drilling in 2010.

Gold zones drilled at Americano and Espresso are hosted in sulphidic and clay-altered brittle fault zones crosscutting granite, similar to the Kona zone. Limited reconnaissance drill testing beneath gold-in-soil anomalies at Americano West in 2011, to the southwest of the Americano “link” structure, yielded several narrow gold intervals. The Americano West area is underlain by equigranular granite and the gold-bearing intervals are characterized by silica-sericite-clay alteration and fine-grained pyrite replacing mafic minerals. Minor pyrite stringers, sulphide-matrix fault breccia, and clots/dissemination and veins of stibnite were also noted at Americano West.

### 6.3.6 **Macchiato and Cappuccino**

The Macchiato and Cappuccino zones, located north and northeast of the Supremo Zone, respectively, are hosted by the augen gneiss host rock package with significant gold intervals intersected at Macchiato and minor gold encountered at Cappuccino during preliminary diamond drilling in 2011. Significant gold intervals at Macchiato are characterized by strong oxidation and silica flooding associated with pervasive limonite and hematite. Crackle breccias with silica-limonite or clay cement were observed in addition to silica-limonite vein and veinlet networks cutting strongly altered host wallrock. The steeply-dipping gold zone appears to trend northeast. The mineralization style encountered at Macchiato is very similar to that observed in the Supremo Zone.

### 6.3.7 **Sugar**

The Sugar area is located in the southeastern area of the Coffee project, 22 kilometres southeast of Supremo and 12.5 kilometres south-southeast of the Coffee Creek camp. Drilling tested the five largest soil anomalies greater than 100 parts of gold per billion over an area roughly 3.5 kilometres by 1.5 kilometres.

The geology of the Sugar area is comprised of intermediate intrusions of various affinities. The most prevalent unit is a multi-phase, equigranular, medium grained granodiorite to quartz monzodiorite. This unit is intruded by two porphyritic units: a hornblende-phyric medium-grained granodiorite, and a plagioclase-hornblende porphyry. These units are in turn locally intruded by aphanitic mafic dykes. Additional volumetrically minor units include small diorite and tonalitic dykes and rafts of metasedimentary rocks. The host granodiorites abut the biotite schist package to the north of the Sugar area; although preliminary evidence suggest a fault contact (observed in SGD0010), the nature of the contact remains unresolved.

Mineralization at Sugar is comprised of sooty pyrite  $\pm$  arsenopyrite  $\pm$  pyrrhotite  $\pm$  stibnite in quartz-carbonate veins, silica sericite minor chlorite and clay salvages on the contacts of some of the veins. Further infrared spectroscopy work has since determined the clays are predominantly kaolinite and illite. These veins or vein sets are subvertical and east-west oriented.

### 6.3.8 Sumatra

The Sumatra zone is located to the north of the Latte zone along the contact between the augen gneiss and biotite-feldspar schist. Mineralization occurs within two separate structures which underlie a broad ENE-trending soil anomaly. The first structure dips steeply (near-vertical) to the northwest, gradually reclining to an approximate dip of 60 degrees through the middle portion of the corridor, and finally steepens in the eastern portion of the structure. The second structure strikes approximately E-W and dips roughly 70 degrees to the south. These structures intersect at 583350mE, forming an hourglass-like structure.

Mineralization consists of strong disseminations of arsenian pyrite along relict schistose fabric in addition to clay-altered and heavily oxidized breccias. Multiple phases of brecciation are preserved in some intervals. Some mineralized intervals preserve schistose fabric, while others are heavily altered to the point of fabric destruction.

### 6.3.9 Arabica

Arabica is located to the east of the Supremo T-structures and is hosted within the augen gneiss panel. Mineralized structures run N-S and dip steeply (~70 degrees) to the east, with a current defined strike length of approximately 800m. Mineralization is hosted within felsic gneiss and local, thin intervals of biotite schist. RC drilling during the 2013 field season identified strong limonite-hematite oxidation in addition to silicification within the mineralized intercepts.

## 6.4 Coffee Weathering Profiles

The mineralized structures at the Coffee Project have undergone extensive preferential weathering and oxidation of iron-bearing minerals as a result of meteoric fluids percolating from surface downwards through the permeable structural corridors. Conversely unfractured and unaltered country rock is typically fresh (unoxidized) from surface. As a result of this preferential weathering, oxidation is channelized along the structural corridors.

Intense oxidation is commonly observed at depths of more than 200m below surface. The majority of the Supremo and Double Double deposits are strongly oxidized; however at Latte oxidation is less pervasive, extending to about 125m below surface in some areas. As a result, transitional facies material forms a larger proportion of the Latte deposit than in Supremo and Double Double.

Oxidation state of both mineralization and country rock has important implications for mineral resource evaluation, the quality of the rock mass and metallurgical processing. Thus systematic classification and re-logging of oxidation facies was undertaken in 2012 in order to ensure consistency and accuracy of drilling information. Re-logging utilized the existing logs, core photographs, and archived reverse circulation chips.

### 6.4.1 Cyanide Solubility Analyses

In 2013, a comprehensive sampling program was implemented in order to systematically quantify the cyanide solubility of gold on a sample-by-sample basis. In order to quantify the degree of oxidation within mineralized rocks at Coffee, a cyanide shake test was employed to measure the amount of cyanide soluble gold within a sample. The ratio of cyanide soluble (AuCN) to total gold (from fire assay) provides information regarding the degree of oxidation and, in general, an indication of the potential cyanide gold leach characteristics of the rocks.

Cyanide shake tests have been conducted on a series of pulp rejects retained from previous drilling campaigns. In many of these older drill holes, AuCN results are available for only select samples. In new drill holes, cyanide shake testing is performed on a sample-by-sample basis, providing a resolution of one metre in diamond drill core and of one and a half metres in reverse circulation chips. The effective lower detection limit for cyanide shake tests is 0.3 g/t Au, making it only possible to determine the percent recoverability of mineralized samples. This limitation results in tightly constrained recoverability estimates within the mineralized portion of structures.

#### **6.4.2 Oxide Categorization**

Four oxide types or domains have been interpreted for the Coffee deposit as described below. The oxide zone is relatively consistent and supported but a large proportion of the data. The degree of oxidation is often highly variable in the two (upper and lower) transition zones as reflected by the oxidation percentage ranges listed below.

Oxide zone: intense to pervasive oxidation. (>90% oxidation).

Upper Transition zone: moderate to intense oxidation (50-90% oxidation).

Lower Transition zone: weak to moderately oxidized (10-50% oxidation).

Sulphide zone: Fresh to weakly oxidized rocks (<10% oxidation).

#### **6.4.3 Three Dimensional Modelling of Oxidation Surfaces**

The ratios of AuCN/total Au have been interpolated in the block model and are utilized in combination with qualitative (visual) estimates of the intensity of oxidation, to provide information regarding the depth and intensity of oxidation in the structural domains. The location and extent of the four oxide domains, described above, are interpreted in cross-section and linked together into a series of 3D domains. These domains are then used to define zones of similar oxidation properties.

### **6.5 Three Dimensional Modelling of Structure and Gold Mineralization**

Interpreted gold mineralized structures and structural corridors were digitized using Micromine. Polygons outlining the mineralized trends were digitized on cross section, and then connected along strike between sections to create solid wireframe models. Two models were created based on different parameters as outlined below. The wireframe models were utilized during resource estimation as discussed in Section 13.

#### **6.5.1 Structural Domain Wireframes**

Broad structural domain wireframes were constructed on the basis of geological criteria: lithology, alteration, and arsenic and gold abundance. Rock codes indicative of structural deformation include fracture zones, breccia, hydrothermal alteration products, and the presence of intermediate-felsic dykes. The structural domains were interpreted on a section-by-section basis using Micromine.

The domains were extended beyond drilling information along strike by half of the drill spacing. For example, at Latte where spacing is typically 100 metres, the wireframes were extended 50 metres both east and west beyond the extent of drilling. Domains were extended vertically to a distance of half of the vertical separation of boreholes on section.

## 6.5.2 Gold Mineralization Wireframes

After modelling the structural domains, gold mineralization wireframes were created within the structural domain wireframes. Gold wireframes were modelled using a threshold of 0.3 gpt gold, and polylines were snapped to the drilling assay data.

In all gold zones except for Latte, the gold mineralization is continuous within the zone, resulting in negligible internal dilution included within the gold wireframes. However, for the Latte gold wireframe that is characterized by thicker zones of mineralization, one to five metres of internal dilution (less than 0.5 grams per tonne gold) was allowed.

As for the structural domain wireframes, gold mineralization wireframes were extended halfway the drilling spacing beyond drilling information. Gold mineralization wireframes were not used for direct construction of the block model, but were used to help guide the three-dimensional planes used to describe the overall trend of the gold mineralization. These planes were then used in turn to help orient search directions to relate samples during grade interpolation of the block model (see Section 13.3).

## 7 Deposit Types

The Coffee project lies within an east-southeast–west-northwest trending tectono-magmatic domain that consists of a series of Cretaceous-age granitoid intrusions (Dawson Batholith and Coffee Creek Granite) as well as Yukon-Tanana terrane metamorphic rocks. This domain extends almost 200 kilometres between Freegold Mountain to the southeast and Coffee to the northwest, and is subparallel to the larger Tintina gold belt in which it lies. The domain is host to a number of significant mineral deposits including porphyry systems (e.g., Casino and Nucleus), epithermal (e.g., Mt. Nansen), and orogenic gold systems (e.g., Golden Saddle, Boulevard, and Longline).

The gold mineralization found to date on the Coffee project is hydrothermal in origin and both structurally and lithologically controlled. Structures which cut schistose host rocks promote formation of disseminated Au-bearing arsenian pyrite through mica sulphidation, with associated strong dolomite-illite-clay alteration. Hydrothermal breccias host mineralization in arsenian pyrite with associated silica-sericite-clay alteration. Quartz veining is rare, although pre-mineralization quartz veins of probable Jurassic age are locally associated with zones of higher grade mineralization. Thin quartz+carbonate+Au-bearing arsenian pyrite veins are observed within the Latte zone. The gold mineralization is characterized by elevated arsenic and antimony. At Supremo, there is a weak positive correlation between gold and silver. At Latte, there is a weak positive correlation between gold-silver and gold-calcium. At Double Double, bismuth and antimony show a weak positive correlation with gold. At Kona, a weak positive correlation between gold and uranium, mercury and barium is observed.

Reduced intrusion-related gold deposits are a common style of gold system within the Tintina gold belt. These systems typically display anomalous Bi, W, and Te in addition to low salinity and CO<sub>2</sub>-rich ore fluids, and are located proximal to reduced, alkaline, volatile-rich plutons (Hart and Goldfarb, 2005; Lang and Baker, 2001). Other salient features include low grade auriferous sheeted vein systems within the pluton cupolas, and general low sulphide abundance within ore. Coffee does not appear to be a reduced intrusion-related gold deposit due to the lack of Bi, W, and Te anomalies, the lack of a pluton associated within mineralization, and generally high sulphide abundance.

At each of the deposits at Coffee, fine grained arsenian pyrite is the dominant host for micron-scale gold mineralization. The Coffee system displays significant arsenic-antimony geochemical anomalies with local realgar and orpiment; however the lack of mercury or thallium anomalies as well as the absence of carbonate host rocks in the Coffee tectonic stratigraphy eliminates the possibility of Coffee being a Carlin-type gold system (Emsbo et al., 2006).

Mineralization at the Supremo and Latte zones is accompanied by a weak gold-silver correlation; however any other significant gold-base metal associations are absent. This generally rules out epithermal gold systems although Coffee does exhibit some features such as chalcedonic quartz and open space fracture-fill in some mineralized intervals.

Similarities to epithermal mineralization are also exhibited in the gold-to-silver ratios observed at Coffee. These ratios range from 1:5 in the Latte Zone to 1:13 in the Supremo Zone, all with the notable absence of base metals. These ranges are consistent with those exhibited by both low sulphidation (base metal poor, 10:1 to 1:10 gold:silver; Sillitoe, 1993) and high sulphidation (1:2 to 1:10 gold:silver; White and Hedenquist, 1995) epithermal systems. High sulphide abundance is commonly observed on the Coffee project, most notably at the Latte zone. High sulphidation deposits are known to commonly be genetically related to and occur above porphyry copper or copper-gold systems (Arribas, 1995; Arribas et al., 1995; Sillitoe, 1973). The nearest known copper-gold porphyry system is Casino, located 30 kilometres from Coffee. However, due to the significant



textural and metal association differences between the Coffee gold mineralization and typical epithermal mineralization, no association between Coffee and porphyry mineralization is implied and no geochemical correlation to assert this relationship has been identified.

Recent work in the Dawson Range has demonstrated that both the Boulevard prospect and the Golden Saddle deposit are orogenic gold systems (Allan et al., 2013; Bailey, 2013; and McKenzie et al., 2013). The Golden Saddle deposit is located approximately 40 km to the north of the Coffee property and contains a resource of 1.4 Moz Au (Weiershäuser et al., 2010). The deposit is hosted within metamorphic rocks of the Yukon-Tanana terrane similar to the Coffee project, with mineralization focused at the intersection of a north-striking thrust fault and east-trending Jurassic sinistral transpressional faults (Bailey, 2013). Alteration which accompanies gold-bearing pyrite mineralization consists of a quartz-carbonate-illite assemblage. Trace elemental associations include Au-Ag-Pb-S-Te. Mineralization was constrained by  $^{187}\text{Re}/^{187}\text{Os}$  ages of 163-155 Ma for molybdenite which occurs in gold-bearing veins. This age is consistent with Jurassic regional uplift and exhumation, and is suggested to be representative of a post-peak orogenic gold event (Bailey, 2013).

The Boulevard prospect is located approximately 10 km to the southwest of the Coffee project. It consists of a sheeted vein system of gold-rich quartz-sulphide-carbonate veins and fault breccia hosted within mafic schist (McKenzie et al., 2013). Mineralization is constrained to  $95.0 \pm 0.4$  Ma by  $^{40}\text{Ar}/^{39}\text{Ar}$  cooling ages for hydrothermal sericite directly linked to gold mineralization. The deposit is modelled as a mid-Cretaceous orogenic gold system related to rapid exhumation of the Dawson Range following the intrusion of the Dawson Range batholith and Coffee Creek granite (McKenzie et al., 2013). Adjacent to Boulevard and just south of Coffee, the Toni Tiger molybdenum showing hosts quartz-molybdenite veins dated to 96-95 Ma. Fluid inclusion study of both Boulevard and Toni Tiger suggests that the two prospects are genetically related and formed from  $\text{H}_2\text{O}-\text{CO}_2-\text{NaCl}$  orogenic fluids of low salinity, between 279 and 310°C and > 1 kbar (McKenzie et al., 2013). Boulevard itself exhibits a distinctly mesothermal-orogenic signature due to the presence of sheeted quartz veins, adjacent molybdenite mineralization, and Au-As-Sb-(Pb-Zn-Cu) metal associations.

To the northwest of the Coffee project, the 93-92 Ma Longline deposit in the Moosehorn Range is structurally controlled and hosts high grade (~30 g/t) gold mineralization within sheeted quartz veins (Joyce, 2002). The mineralization is controlled by shallowly east-northeast dipping, north-northwest striking brittle reverse fault structures which cut the Dawson Range batholith. Alteration associated with mineralization includes muscovite, sericite, Fe-carbonate, pyrite, arsenopyrite, clay, quartz, and tourmaline (Joyce, 2002). Gold-bearing quartz veins precipitated from a  $\text{H}_2\text{O}-\text{CO}_2-\text{CFI}_4-\text{NaCl} + \text{N}_2$  fluid of moderate salinity between temperatures of 260 and 300°C, at a pressure of approximately 1.3-1.9 kbar and a depth of 5-7 km (Joyce, 2002).

Detailed study of the Latte gold zone suggests that Coffee is an epizonal, early-brittle stage orogenic gold deposit (Buitenhuis, 2014; Allan et al., 2013). The fluid responsible for mineralization at Latte is likely the cool (220-250°C), shallow extension of the mineralizing fluid responsible for gold mineralization at Boulevard and molybdenite mineralization at Toni Tiger. A  $\text{CO}_2$ -rich fluid flowed through the region, powered by the anomalous geothermal gradient caused by the rapid unroofing of the Dawson Range in the mid-Cretaceous. This fluid formed sheeted quartz veins within the mesozonal domain represented by Boulevard and Toni Tiger, where the base metal and silica content of the fluid was depleted during vein formation. The fluid, now mostly depleted in base metals, travelled upwards in the system into the epizonal domain of the Coffee project, where it was controlled by the structural framework of the Coffee Creek fault system and reacted with favorable host rocks. The fluid travelled along brittle structures and deposited gold-rich arsenian pyrite within schistose rocks through sulphidation, and in high-energy pulses, formed gold-rich hydrothermal breccias (Buitenhuis, 2014). The timing of gold mineralization at Coffee is post-emplacement of the Coffee Creek granite, and is most likely, based on field, geochemical, and petrographic observations,

to be syn-to-post mineralization at Boulevard (~95 Ma) in age. The possibility exists, however, that Coffee could be related to a younger, unidentified mineralizing event. Geochronological confirmation is pending.

## 8 Exploration

Kaminak has carried out exploration on the Coffee project over the course of five separate field seasons: 2009, 2010, 2011, 2012, and 2013. Exploration in 2009 consisted of soil sampling, trenching, mapping, prospecting, and a ground magnetic survey.

Exploration in 2010 followed up with the same activities in support of a 16,104 metre core drilling program. The 2011 exploration campaign consisted of reverse circulation and diamond core drilling, trenching, geophysics, mapping, and soil sampling (Table 5).

Exploration work carried out from 2009 to 2012 is summarized in detail in the previous technical reports (2011, 2012, and 2013). Work completed during the 2013 field season is described below.

**Table 5: Exploration Work Completed by Kaminak**

Coffee Exploration Summary by Year					
Year	Soil Samples	Trenching (m)	Mapping and Sampling (days)	Geophysics	Geomorphology
2009	6,000	4,000	10	261 line-km ground magnetic survey	N/A
2010	9,473	4,000	10	579 line-km ground magnetic survey	N/A
2011	10,958	3,824	15	4,842 line-km airborne magnetic and gamma-ray spectrometric; 15.9 line-km HLEM and Ohm mapper surveys	Yes
2012	4,603	N/A	40	N/A	N/A
2013	5,047	169	2	18 days of Induced Polarization	N/A
<b>Totals</b>	<b>36,081</b>	<b>11,993</b>	<b>77</b>	N/A	N/A

### 8.1 Exploration Work by Kaminak in 2013

#### 8.1.1 Soil Sampling

5,047 grid geochemical samples were collected in 2013 by Ground Truth Exploration Inc. of Dawson, YT to both follow up on previously sampled ridge and spur gold-in-soil anomalies, and provide greater detail to previous sample grids.

A total of nine new soil grids were sampled with 100-metre sample spacing to cover anomalous ridge and spur anomalies. An infill sampling program was undertaken on the main contiguous soil grid in order to provide more detail to previously outlined anomalies. The main resource area was sampled between previous soil grid lines to decrease the sample spacing to 50m. Macchiato and Cappuccino were also resampled to decrease the sample spacing to 25m (Figure 25).

#### 8.1.2 Trenching

Four trenches were dug in July, 2013: three at Supremo, dug east-west across T3at 6974250mN, 6974375mN and 6974400mN, and one at Latte, dug north-south across the Latte structure at 583250mE (Figure 26). Trenches were dug to test geology and continuity of mineralization at

surface and to provide sampling material for metallurgical testing. All trenches were laid out by Kaminak geologists and excavated by JDS Energy and Mining's 320 Caterpillar excavator.

**Trench 6974250mN**

Trench 6974250mN was excavated to a length of 40m. From 15m to 25m, the trench intersected 10m at 4.08g/t Au in strongly to intensely silica+sericite±clay-altered felsic gneiss and dacite dyke.

**Trench 6974375m**

Trench 6974375mN was excavated to a length of 30m. From 6m to 17m, the trench intersected 11m at 20.05g/t Au in strongly to intensely silica+sericite±clay-altered silicified clast breccia, felsic gneiss and dacite dyke.

**Trench 6974400m**

Trench 6974400mN was excavated to a length of 21m. From 9m to 21m, the trench intersected 12m at 10.93g/t Au in moderately to intensely silica+sericite±clay-altered felsic gneiss and dacite dyke.

**Trench 583250mE**

Trench 6974400mN was excavated to a length of 78m. From 10m to 66m, the trench intersected 56m at 1.31g/t Au in moderately to locally-intensely silica+sericite-altered biotite schist.

The results from these trenches confirm that gold mineralization does extend to surface. The gold grades encountered in the Supremo T3 trenches tend to be higher in comparison to proximal drill holes. The trench at Latte produced similar thickness and grades in comparison to the resource model in this area. Although great care and consistency was used to obtain representative samples from these trenches, the type and volume of these samples differs significantly from samples collected from drill holes. As a result, the channel sample data has not been incorporated for use in the generation of the resource model.

### 8.1.3 Mapping and Prospecting

Two days of geological mapping were performed by consultants Doug Mackenzie and Dave Craw.

### 8.1.4 Geophysical Surveys

Ground Truth Exploration Inc. of Dawson, YT conducted induced polarization surveys for 18 days.



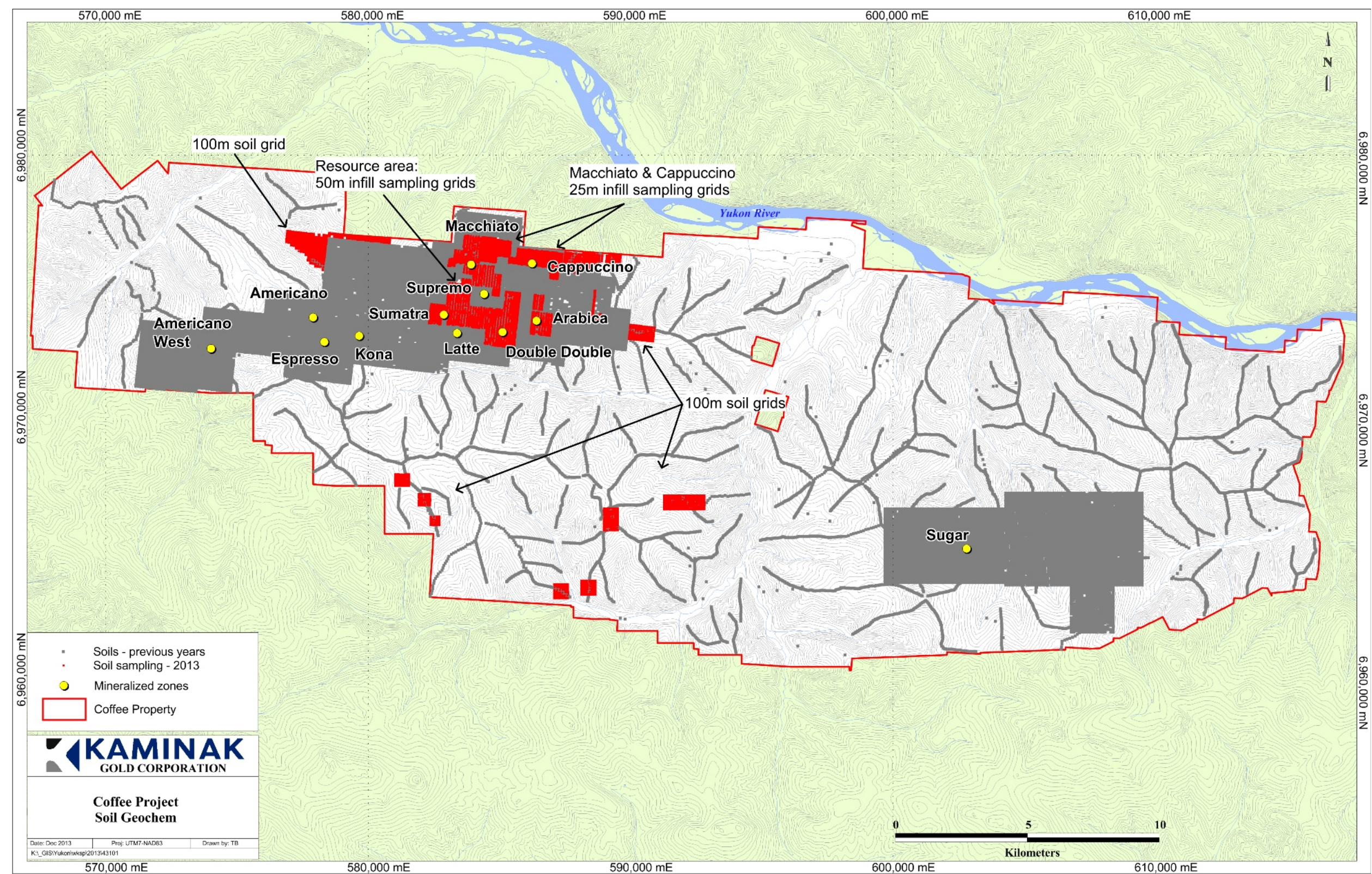


Figure 25: 2013 Soil Geochemistry Program



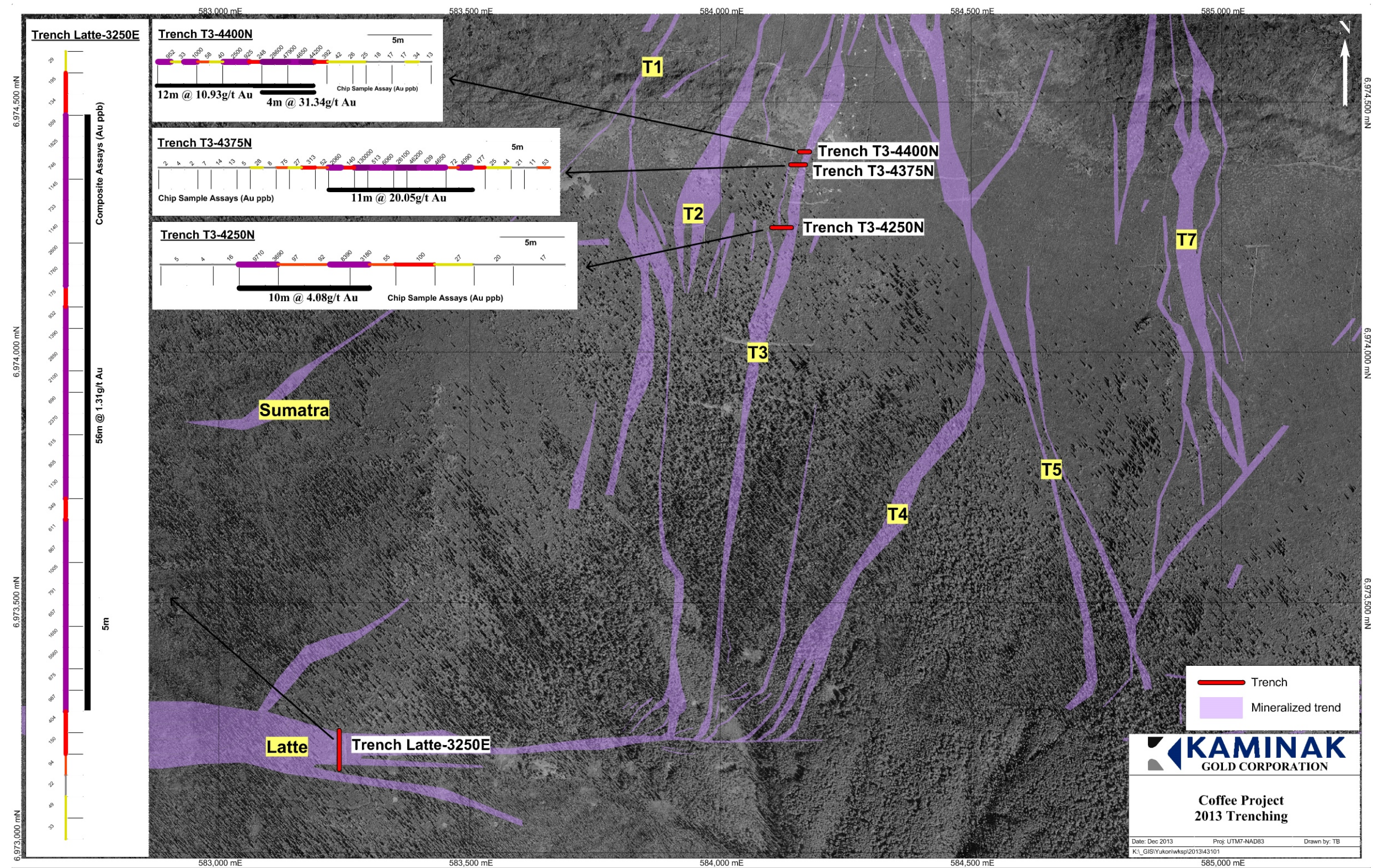


Figure 26: 2013 Trenching Program



## 8.2 Sampling Method and Approach

Sampling of geological materials completed by Kaminak during 2009 through 2013 was performed by experienced geological technicians under the supervision of appropriately qualified geologists. The following paragraphs summarize the sampling methodology and approach for the soil and rock chip samples.

### 8.2.1 Soil Sampling

The purpose of the soil sampling was to map the distribution of gold and associated metals in the soils with the hypothesis that gold (and other metals) in soil bears direct relationship with gold mineralization in bedrock that outcrops poorly over the project area.

Soil sampling was carried out by Ground Truth Exploration from Dawson City, Yukon. Soil samples were collected over a grid pattern of northerly directed lines spaced by 100 metres with sampling stations spaced by 50 metres. The exception to this orientation is the 2011 Sugar area sampling, in which the grid was rotated to easterly directed lines spaced by 100 metres with sampling stations spaced by 50 metres. In 2012, the Sugar area sampling returned to a pattern of northerly directed lines following the better understanding of mineralization distribution gained from soil sampling and trenching completed in 2011.

Samples were collected using a hand auger to various depths depending on the soil profile. The organic A horizon material was discarded, and augering continued until the C horizon rock chips were encountered, checking for false bottoms on the A horizon profile. Soil samples were collected over intervals varying from 60 to 70 centimetres, with maximum depth not exceeding the 1.25 metre length of the auger. Samples were placed directly in pre-marked bags. A field duplicate sample was collected at a rate of one every 25 samples. Sample number, location, depth, and geological parameters were recorded directly into a handheld computer with a GPS reading of sample location, also stored separately as a backup. The sample location was marked with flagging tape and a metal tag on a nearby tree.

Samples were submitted by the contractor to Acme Analytical Laboratories in Vancouver, British Columbia. The sample information was downloaded from the handheld computers into spreadsheets, and subsequently integrated into Kaminak's Coffee project database.

### 8.2.2 Rock Chip Sampling

In 2009 to 2012 trenches, rock samples were taken in trenches over 5-metre horizontal intervals. Samples were collected by chipping subcropping rock with a rock hammer on the wall or base of the trench over the desired interval taking care to collect a representative sample of the interval. Inherently, this selective sampling approach can introduce sampling bias, but the purpose of this sampling was to link gold-in-soil anomalous areas to outcropping or subcropping bedrock and to define worthy drilling targets. In such circumstances, a positive sampling bias is generally desirable.

For 2013 trenching, heavy equipment was used to excavate trenches to the bedrock interface, where they were then ripped down into bedrock up to 0.5m below the bedrock surface. Trenches were marked following preliminary excavation with metre marks, and the trench was



subsequently re-entered to rip clean bedrock material on 2-metre intervals which was then placed on the side of the trench for later metallurgical sampling.

Trenches 6974375mN and 6974400mN were chip sampled every metre from the bottom of each trench using a continuous chip sample along the trench base. Trench 6974250mN was too deep for the samplers to safely enter, and so was sampled from the clean metallurgical samples placed at the side of the trench. Trench 583250mE quickly filled with water following completion, and thus also had to be sampled from the metallurgical samples on the side of the trench.

The location of the centre of each sample was recorded using a handheld GPS unit. Other descriptive attributes and geological information about the sample were recorded into logging software on a daily basis and incorporated into the project database.

## **9 Drilling**

### **9.1 Sampling Method and Approach**

Sampling of geological materials completed by Kaminak during 2009 through 2013 was performed by experienced geological technicians under the supervision of appropriately qualified geologists. The following paragraphs summarize the sampling methodology and approach for core and reverse circulation boreholes.

#### **9.1.1 Drill Core Sampling**

The drilling approach was to target the structural trends with fences of one or more core boreholes drilled perpendicular to the strike of the interpreted structures on variably spaced sections. Most sections received two to five boreholes per structure, designed to sample the targeted structures at different depths (typically to maximum depths of 200 metres below surface). This strategy was used to provide maximum geologic information about each target. The approach was adjusted during drilling to allow for the testing of extensions of interesting geology, or assay results on adjacent sections. Rather than “fan” a series of holes from one set-up, Kaminak typically drills each hole from a unique set-up, resulting in a series of sub-parallel holes that often intersect at close to right angles with the target horizon. The resulting intersections generally represent “true” thickness through the zone.

Drill core was transported daily by truck or helicopter to the logging facility at the Coffee Creek camp. Core was reviewed for consistency and each metre marked clearly for reference. Core recovery and RQD were measured and recorded, and the core oriented when possible. XRF analyses were performed at nominal 1-metre intervals, as close to the metre mark as possible. Core was then logged by a geologist, recording lithology, alteration, structure, and mineralogy, directly into a data shed using a laptop computer. Core photographs were then taken prior to sampling. Core samples were taken from half core sawed lengthwise with a diamond saw. Half core samples were bagged and prepared for dispatch to ALS Minerals. The remaining half was returned to the core boxes. Commercial blank and control (standard reference) samples were inserted at a rate of one every 10 samples, alternating between a blank and a reference material sample. Following sampling, core boxes were labelled with metal tags and stored on cross-stacked pallets at the Coffee Creek camp for future reference and testing. Sample books provided by ALS Minerals were used to record borehole number, location, sampling interval, and date of sampling. All sample books are organized and archived at the Kaminak Vancouver office for future reference.

#### **9.1.2 Reverse Circulation Chip Sampling**

Reverse circulation drilling was completed on the Coffee project in 2010 through 2013. The drilling approach was similar to that employed for diamond core drilling. The drill holes were designed to target structural trends with structural pierce points designed to have a nominal vertical spacing of 25 metres, and with individual fences spaced between 12.5 and 50 metres apart, depending upon the level of geological confidence of the structural trend.

The reverse circulation drill works by driving compressed air through a pneumatic hammer attached to a semi-permeable bit, which acts like a jack hammer. Chips and rock dust generated by the hammer are forced through openings in the face of the bit and up into the sample return

tube inside the rod string. The 5-foot rods are attached to an air and sample hose that continues into a cyclone module. The sample is separated from the air in the cyclone and drops out of the bottom into a 5 gallon pail. Each sample comprises one 5-foot run, with the borehole and rods being blown out (cleaned) between each run. The total volume of cutting is split through a 1:7 riffle splitter, into a sample typically measuring 2kg in size, and the larger volume of reject material that is retained at the drill site in a series of individual retention bags. Sample chips are sieved from a spear sample of the retention bag and logged by the geologist on-site directly into a field laptop, which is in turn backed up digitally each night. Sample bags collected for analysis are transported daily by truck or helicopter to the processing facility at the Coffee Creek camp. Each sample is then analysed on the XRF instrument before being shipped to ALS Minerals for analysis.

## 9.2 2013 Drilling

During 2013, 302 boreholes (55,478 metres) were drilled: 62 core boreholes (12,273 metres) and 240 reverse circulation boreholes (43,205 metres) at Supremo, Latte, Arabica and Sumatra (Table 6, Figure 27). Representative cross sections with interpreted structural zones and Au composites for Supremo and Latte are shown in Figure 28 and Figure 29.

### 9.2.1 Core Drilling

Core drilling took place between May and October, 2013 and was contracted to Cyr Drilling International Ltd. of Winnipeg, Manitoba. One Boyles 37 drill rig was dragged between drill sites by excavator or bulldozer. All core drilled was NQ2 diameter (50.5mm).

Borehole locations were planned and marked by Kaminak geologists using a handheld GPS. A compass was used to determine borehole azimuth and inclination. Boreholes were drilled at an angle of between 70 and 45 degrees from the horizontal, depending upon the target. Downhole surveys were completed for all boreholes using a Reflex EZ-Shot® electronic single shot (magnetic) device. Downhole deviation of boreholes was measured using these tools at nominal 30-metre intervals. Collar locations were surveyed following completion by Challenger Geomatics Ltd. of Whitehorse, YT with a Real Time Kinematic (RTK) GPS using five established control points.

Core retrieved from boreholes was moved from the drilling sites to the base camp at Coffee Creek by truck or occasionally by helicopter. At the camp, core was examined for consistency, re-assembled, and marked for orientation. RQD was measured by a trained technician. Core pieces were then selected for portable XRF analysis on one metre intervals in mineralized rocks and on two metre intervals in non-mineralized zones. Core was then described (logged) and photographed by a geologist and marked for sampling. Finally, SG measurements were recorded for each major lithology and for each potentially mineralized interval. All descriptive information was captured digitally on-site using a Microsoft Access database. Core samples were cut in half lengthwise and half of the core was sent for analyses at ALS Minerals in Whitehorse.

Diamond core recovery data is available for nearly all drill holes on the Coffee property. Global average core recovery is 95 percent, with 94 percent of all sample intervals demonstrating recoveries greater than 80 percent. Approximately 1 percent of sample intervals have recoveries less than 50 percent. There is no apparent relationship between drill core recovery and gold content at Coffee.

### 9.2.2 Reverse Circulation Drilling

Reverse circulation drilling took place between March and October 2013 and was contracted to Northspan Explorations Ltd. of Kelowna, British Columbia. Two skid-mounted “Super Hornet” drill rigs were dragged between drilling sites by excavator or bulldozer. All RC boreholes were 92mm diameter.

Reverse circulation chips were logged on-site by Kaminak geologists, prior to being transported back to the Coffee Creek camp by truck. At the camp, the sample bags were analysed by portable XRF prior to being shipped to the analytical laboratory for preparation.

No recovery data is available for reverse circulation drilling, however, the authors conclude through personal site inspection that recoveries are very good. While fine dust is lost to the air during drilling, this represents a very small amount of sample material and is not believed to affect sample integrity to a measurable degree. Sample retention bags were observed to show consistent sample size, which is indicative of constant sample recovery throughout the drilling process.



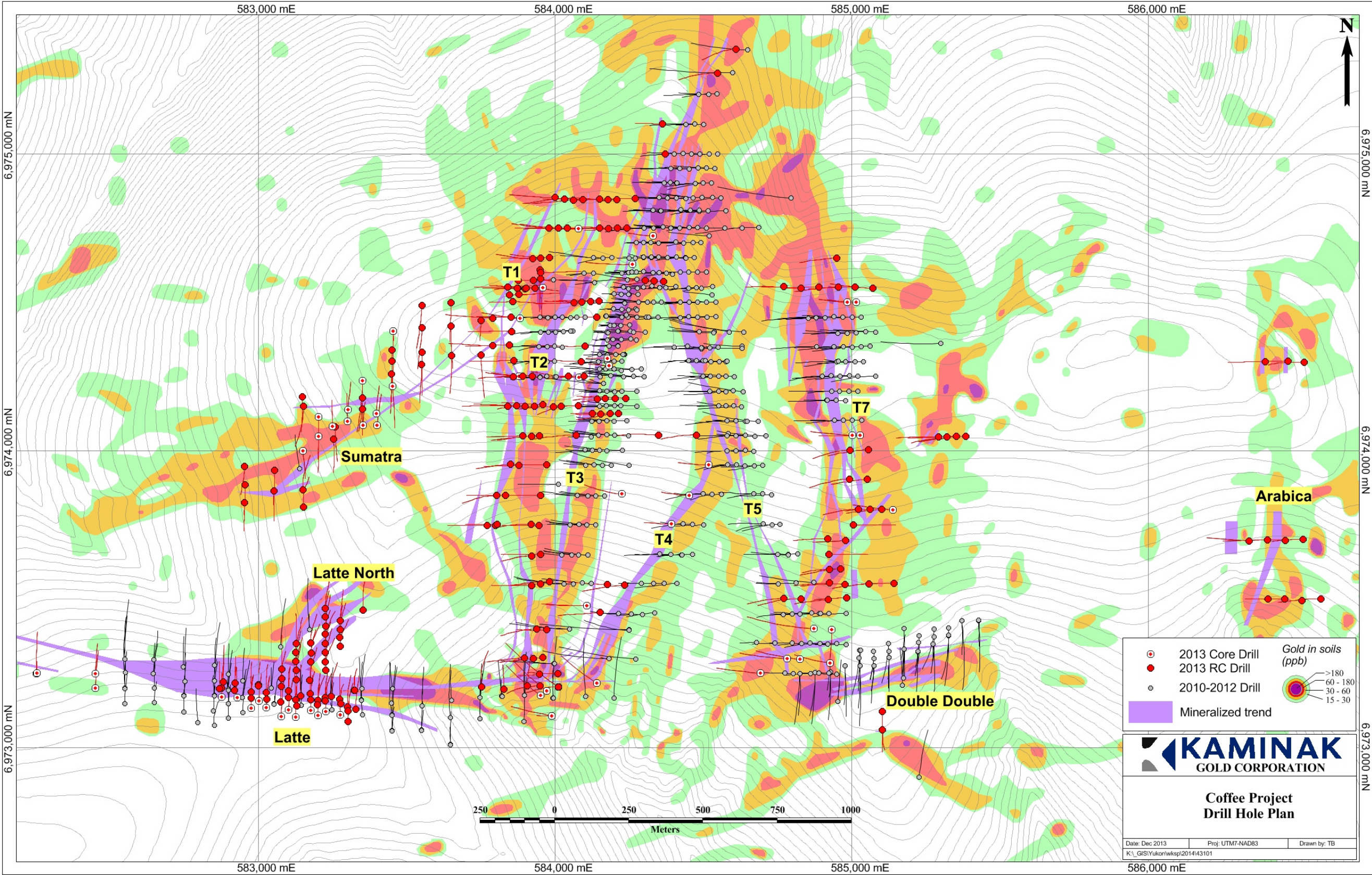


Figure 27: Drill Hole Plan



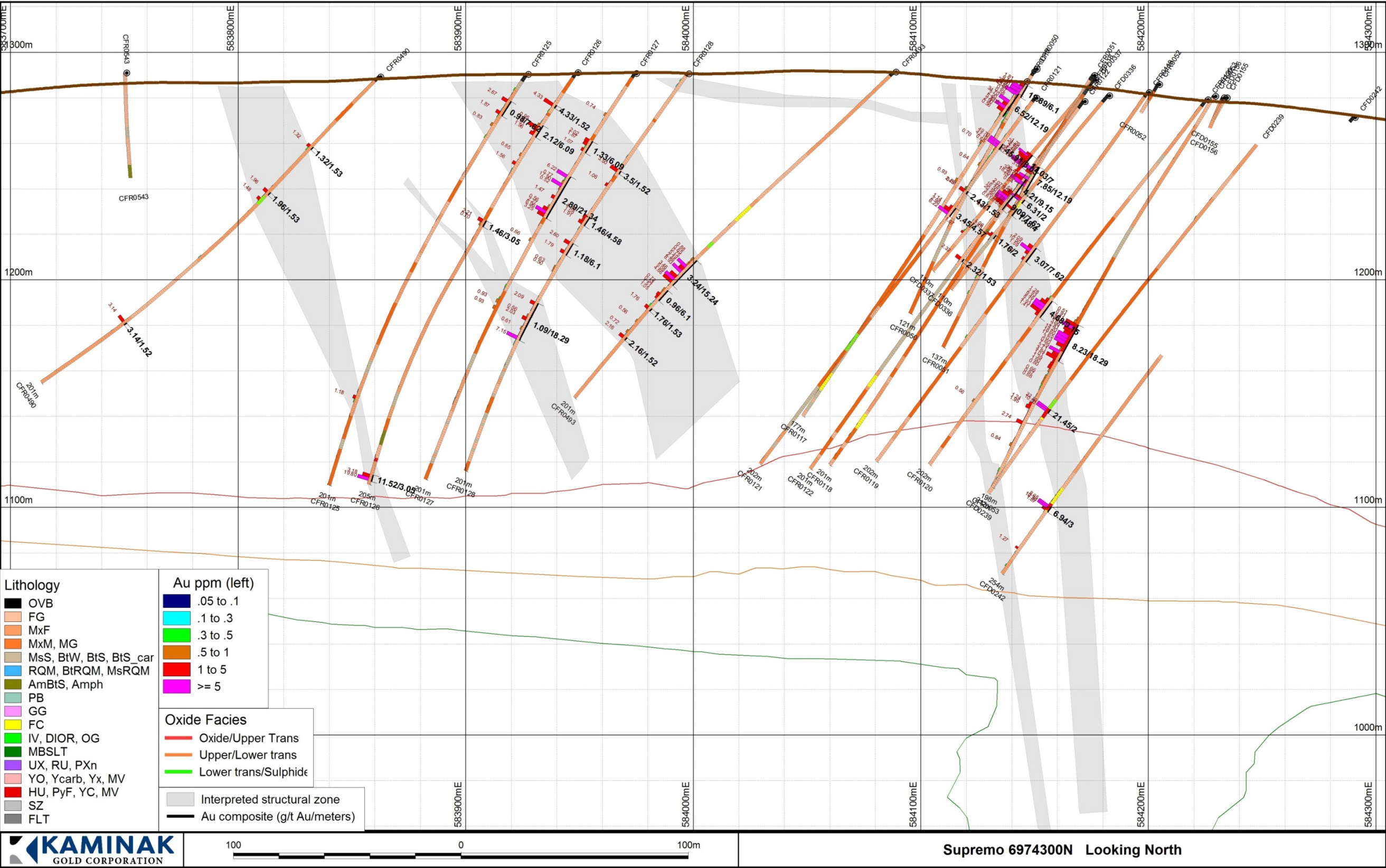


Figure 28: Drill Section through Supremo, 6974300N, looking north



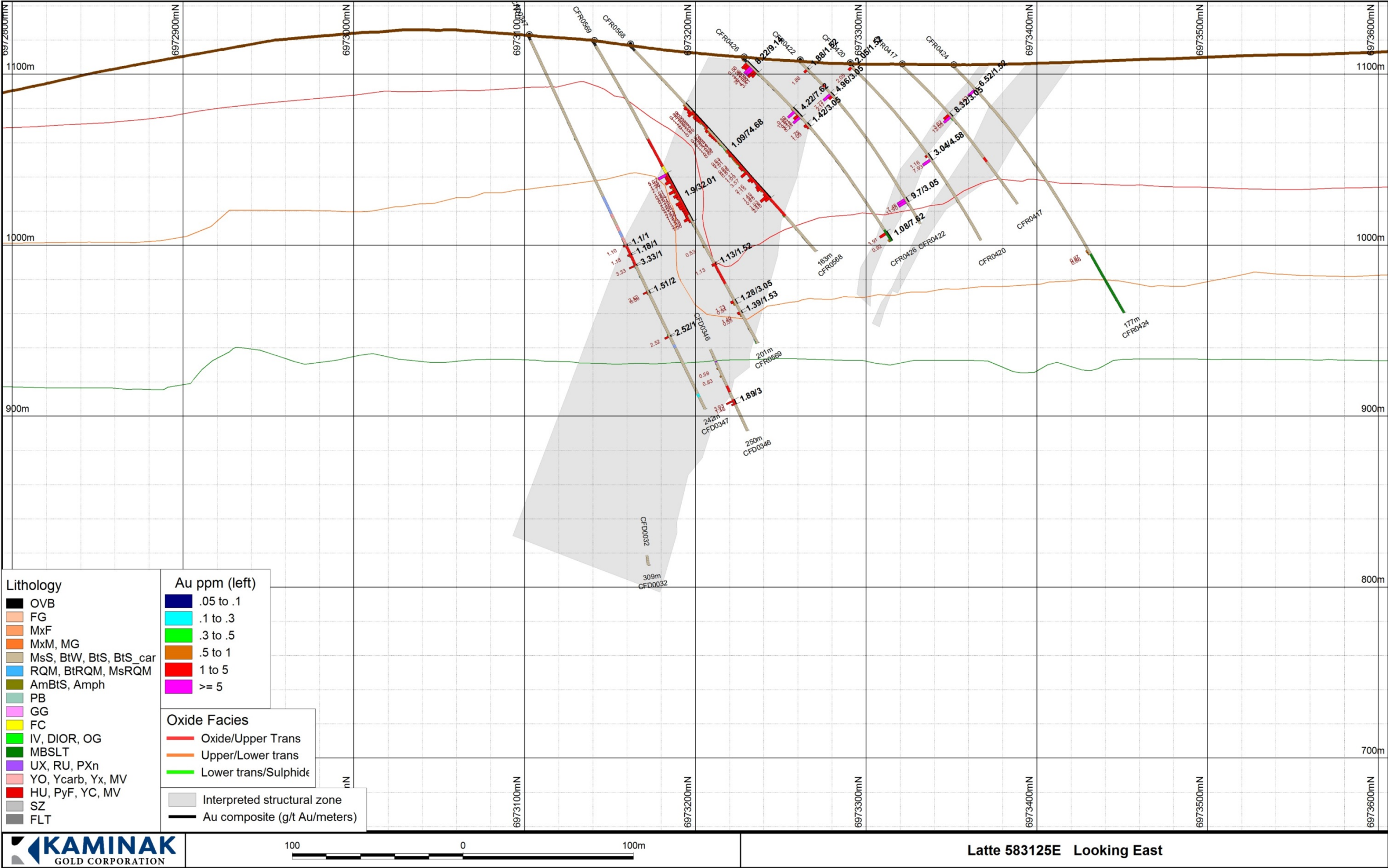


Figure 29: Drill Section through Latte, 583125E, looking west

## 9.3 Drilling Summary

As of the end of the 2013 field season, a total of 961 drill holes for approximately 185,171 metres of cumulative drilling have been completed at the Coffee project. A complete drilling summary by year, drilling method, and zone is provided in Table 6. In addition, tables detailing the top 25 gold intersections by diamond and reverse circulation drilling are provided (Table 7, Table 8).

**Table 6: Coffee Project Drilling by Year**

Coffee Drilling Summary by Year				
Year	Type	Zone	Holes	Metres
2010	DD	Supremo	27	5,433
		Latte	19	4,291
		Latte North	2	420
		Sumatra	1	184
		Double Double	5	1,231
		Kona	3	499
		Kona North	4	745
		Espresso	3	795
		Americano	10	1,868
		Regional	2	637
		All Zones	76	16,103
2010 Summary		Totals	76	16,103
2011	DD	Supremo	15	4,904
		Latte	60	15,812
		Latte North	1	229
		Double Double	11	2,742
		Kona	6	1,810
		Macchiato	4	1,191
		Cappuccino	2	602
		Americano West	4	1,222
		All Zones	101	28,515
	RC	Supremo	98	13,374
		Kona	47	6,153
		All Zones	145	19,527
		2011 Summary		Totals
2012	DD	Supremo	82	17,642
		Double Double	30	8,455
		All Zones	112	26,097
	RC	Supremo	223	39,451
		All Zones	223	39,451
2012 Summary		Totals	335	65,548
2013	DD	Supremo	30	5,953
		Latte	19	4,225
		Sumatra	13	2,094
		All Zones	62	12,272
	RC	Supremo	142	26,339
		Latte	35	5,480
		Latte North	25	4,645
		Sumatra	25	4,682
		Double Double	2	316
		Arabica	11	1,744
		All Zones	240	43,206
2013 Summary		Totals	302	55,478
Coffee Project		Property Totals	961	185,171

**Table 7: Selected Diamond Borehole Assays**

Coffee Top Assay Results - Diamond Core					
Borehole ID	From (m)	To (m)	(m)	Gold (gpt)	Prospect
CFD0090	105	109	4	74.9	Double Double
CFD0001	15	30.5	15.5	17.07	Supremo T3
CFD0027	139	174	35	6.3	Double Double
CFD0228	129	135	6	36.55	Supremo T3
CFD0016	53	67	14	12.43	Supremo T3
CFD0210	31	42	11	15.52	Supremo T3
CFD0082	109	126	17	9.61	Latte
CFD0199	158	171	13	12.53	Supremo T3
CFD0215	64	68.5	4.5	34.95	Double Double
CFD0221	212	225	13	10.48	Supremo T3
CFD0342	120	202	82	1.65	Latte
CFD0205	51.5	55	3.5	36.29	Double Double
CFD0053	3.25	60	56.75	2.21	Kona
CFD0115A	142	201	59	2.11	Latte
CFD0340	89	124	35	3.52	Latte
CFD0080	60	67	7	17.37	Latte
CFD0298	6	50	44	2.69	Supremo T1-T2
CFD0234	226	240	14	8.26	Supremo T3
CFD0183	164	170	6	19.14	Supremo T3
CFD0261	304.5	328.5	24	4.33	Double Double
CFD0011	33	76	43	2.31	Latte
CFD0270	219	228	9	10.21	Supremo T4-5
CFD0303	95	111	16	5.67	Supremo T1-2
CFD0223	86	89	3	29.23	Supremo T3
CFD0044	98	137	39	2.23	Latte

**Table 8: Selected Reverse Circulation Borehole Assays**

Coffee Top Assay Results - Reverse Circulation					
Borehole ID	From (m)	To (m)	(m)	Gold (gpt)	Prospect
CFR0252	182.88	201.17	18.29	14.51	Supremo T4
CFR0124	120.7	131.37	10.67	19.56	Supremo T3
CFR0035	30.48	45.72	15.24	13.5	Supremo T3
CFR0276	24.38	32	7.62	21.9	Supremo T3
CFR0567	50.29	135.64	85.35	1.92	Latte
CFR0254	1.53	53.34	51.81	3.09	Supremo T4-5
CFR0053	117.04	135.33	18.29	8.23	Supremo T3
CFR0121	24.99	28.04	3.05	45.91	Supremo T3
CFR0563	38.1	86.87	48.77	2.85	Latte
CFR0565	67.06	121.92	54.86	2.44	Latte
CFR0050	8.23	14.33	6.1	19.89	Supremo T3
CFR0321	3.05	16.76	13.71	8.49	Supremo T5
CFR0144	82.3	114.3	32	3.62	Supremo T4-5
CFR0557	92.96	163.07	70.11	1.64	Latte
CFR0433	57.91	71.63	13.72	8.31	Latte North
CFR0576	6.1	70.1	64	1.71	Latte
CFR0027	18.29	27.43	9.14	11.61	Supremo T3
CFR0283	9.75	29.57	19.82	5.27	Supremo T5
CFR0286	102.11	114.3	12.19	8.33	Supremo T3
CFR0342	36.58	94.49	57.91	1.72	Supremo T5
CFR0051	46.94	59.13	12.19	7.85	Supremo T3
CFR0566	44.2	83.82	39.62	2.38	Latte
CFR0200	80.77	112.78	32.01	2.94	Supremo T4
CFR0408	102.11	114.3	12.19	7.23	Supremo T1-2
CFR0556	80.77	103.63	22.86	3.8	Latte

## **10 Sample Preparation, Analyses and Security**

### **10.1 Historical Sampling**

Soil samples collected by Mr. Shawn Ryan in 2007 were analysed by Acme Analytical Laboratories (Acme) in Vancouver, British Columbia. The management system of the Acme laboratory is accredited ISO 9001:2008 by BSI America Inc. Acme implements a quality system compliant with the International Standards Organization (ISO) 9001 Model for Quality Assurance and ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories. Acme also participates in the CANMET and Geostats round robin proficiency tests.

Soil samples were prepared using a conventional preparation procedure and analysed for a suite of 36 elements using aqua regia digestion followed by inductively coupled plasma-atomic emission spectrometry (ICP-AES) on 15-gram subsamples (method code 1DX2).

There is no historical lithogeochemical (rock) sample data for the Coffee Project.

### **10.2 Sampling by Kaminak**

Kaminak used two primary laboratories for assaying samples collected during the 2009 through 2013 programs.

Soil samples collected in 2009 through 2013 were submitted to the accredited Acme laboratory. The samples were prepared and assayed using the same methodology used to assay samples submitted by Mr. Ryan in 2007. Soil samples were prepared using standard preparation procedures and analysed for a suite of 36 elements using aqua regia digestion followed by ICP-AES on 15-gram subsamples (method code 1DX2).

All drill core, reverse circulation, trench, and grab samples collected in 2010 through 2013 were submitted to ALS Minerals for preparation and assaying. The management system of the ALS Group of laboratories is accredited ISO 9001:2000 by QMI Management Systems Registration. Samples were crushed and pulverised by the Whitehorse preparation facility and shipped to North Vancouver for assaying. The North Vancouver laboratory is accredited ISO/IEC 17025:2005 by the Standards Council of Canada for certain testing procedures, including those used to assay samples submitted by Kaminak. ALS Minerals laboratories also participate in international proficiency tests such as those managed by CANMET and Geostats Pty Ltd.

All samples were individually sealed in polyore bags on-site and shipped by commercial fixed wing charter aircraft (operated by Alkan Air Ltd. and Great River Air Ltd.) to Whitehorse or Dawson City, then via road transport by expeditor or Kaminak personnel directly to ALS Minerals' preparation facility in Whitehorse. Samples were conveyed within rice sacks sealed by uniquely numbered security tags to minimize voluntary or inadvertent tampering. Security tags were tracked through the transport until receipt by ALS Minerals. No rice sacs were reported tampered with during 2010, 2011, 2012, and 2013.

Rock and core samples were prepared for assaying at the ALS Minerals preparation facility using a conventional preparation procedure (dry at 60 degrees Celsius, crushed and sieved to 70 percent



passing 10 mesh ASTM, pulverised to 85 percent passing 75 micron or better). Prepared samples were then transferred to ALS Minerals laboratory in North Vancouver where they were assayed for gold using a conventional fire assay procedure (ICP-AES) on 30-gram subsamples (50-gram samples were used in 2010). In 2010 and 2011 all samples were also submitted for a suite of 35 elements using an aqua regia digestion and ICP-AES finish on 5-gram subsamples. In 2012, samples from only select boreholes (54 boreholes in total) were submitted for the 35-element analysis. In 2013, 87 boreholes were submitted for the 35-element analysis.

In 2013 samples grading greater than 0.3 gpt gold were submitted for cyanide leach analysis. For this analysis, a 30-gram subsample is weighed into a closed 100 mL plastic vessel. 60 mL of sodium cyanide solution (0.25% NaCN, 0.05% NaOH) is then added and the sample is shaken until homogenized. Following homogenization, the solution is rolled for an hour before an aliquot is taken and centrifuged. Finally, the sample is analysed by atomic absorption spectrometry. 8,016 samples from all drilling programs (2010 through 2013 inclusive) were analysed by cyanide leach analysis during 2013.

Samples grading in excess of 10 gpt gold were re-assayed from a second 30-gram split (50-gram split in 2010) using a fire assay procedure and a gravimetric finish. In 2012 and 2013, samples grading in excess of 20 gpt gold were submitted for screened fire assay from a 1,000 gram coarse reject split. The screened fire assay was passed through a 100 micron mesh, with the oversize fraction (roughly four weight percent on Kaminak samples in 2012) undergoing gravimetric analysis following fusion, whereas the undersize fraction was split into two 50-gram samples and finished using atomic absorption. The average between the two minus fractions was then combined together with the plus fraction to give the total weighted average gold.

In 2010, samples assaying more than 100 gpt silver (two samples) were re-assayed using either an “ore grade” digestion followed by ICP-AES or by conventional fire assay with gravimetric finish on 50-gram charges. Two samples from 2011 reported more than 100 gpt silver, but were not re-assayed. No samples from 2012 or 2013 drilling returned greater than 100 gpt silver.

Approximately one in 100 master pulps from core and reverse circulation samples submitted to ALS Minerals in 2010, 2011, 2012, and 2013 were submitted annually at the conclusion of each exploration season to Acme Labs for umpire check assaying.

All zones drilled in a given year were represented in the check assay samples, and although samples covered a wide range of assay results (from detection limit to greater than 20 gpt gold), preference was given to individual samples that ran greater than 0.3 gpt gold in order to provide an accurate test of lab performance and avoid running a large number of near-detection samples. Kaminak did not use an umpire laboratory to verify the assay results for soil samples delivered by Acme in 2009 through 2013.

In 2010, two composite core samples were submitted to the Inspectorate Exploration & Mining Services Ltd (Inspectorate) in Burnaby, British Columbia for preliminary metallurgical testing. In 2011, Kaminak submitted one additional composite core sample for follow-up heap leach column testing to the Inspectorate Laboratory. The Inspectorate laboratory is part of the Veritas Bureau Group, which provides a wide range of testing services to the mineral industry. The Inspectorate laboratories are accredited to relevant national and international standards including ISO 17025. In 2012, Kaminak submitted additional core samples for further metallurgical testing by the Inspectorate Laboratory.

In 2013, seven metallurgical composite samples were assembled from drill core and submitted to Kappes, Cassiday & Associates (KCA) in Reno, Nevada. Each composite was utilized for head analyses, head screen analyses with assays by size fraction, bottle roll leach test work, agglomeration test work, and column leach test work. In addition, some material from one composite was used for comminution and flotation test work, all at KCA. KCA has completed extensive metallurgical testwork for northern projects including Kinross' Fort Knox project in Alaska and Victoria Gold's Eagle project in Yukon.

### 10.3 Specific Gravity Data

Specific gravity measurements were made using the water immersion method. In 2011, measurements were made at nominal 10-metre intervals in non-mineralized rock and at nominal 5-metre intervals in structural zones or apparent gold mineralized rock. In 2012 and 2013, measurements were selected at a rate of one sample per mineralized zone, and one sample per major lithology in non-mineralized rock. In areas of multiple mineralized zones separated by non-mineralized intervals less than 10 metres wide, specific gravity was measured for the mineralized zones only.

Samples were weighed dry in air, coated with paraffin wax and weighed immersed in water. A standard was measured roughly every 10 samples in order to measure instrumental drift. Results were recorded directly into a Microsoft Excel spreadsheet.

Specific gravity measurements less than 2.40 or greater than 3.50 were re-weighed by technicians to ensure accuracy. Independent specific gravity testing was also conducted on a randomly selected batch of 35 samples in 2011, 30 samples in 2012, and 26 samples in 2013 by ALS Minerals in North Vancouver, British Columbia in order to verify the accuracy of the on-site methodology. ALS Minerals results are in close agreement with field measurements, and, therefore, indicate good reproducibility.

Field specific gravity measurements indicate a mean of 2.61 from 5,307 samples representing all deposit areas. The standard deviation of the sample population is 0.160.

### 10.4 Quality Assurance and Quality Control Programs

Quality control measures are typically set in place to ensure the reliability and trustworthiness of the exploration data. These measures include written field procedures and independent verifications of aspects such as drilling, surveying, sampling and assaying, data management, and database integrity. Appropriate documentation of quality control measures and regular analysis of quality control data are important as a safeguard for project data and form the basis for the quality assurance program implemented during exploration.

Analytical control measures typically involve internal and external laboratory control measures implemented to monitor the precision and accuracy of the sampling, preparation, and assaying processes. They are also important to prevent sample mix-up and monitor the voluntary or inadvertent contamination of samples. Assaying protocols typically involve regular duplicate and replicate assays and insertion of quality control samples. Check assaying is typically performed as an additional reliability test of assaying results. This typically involves re-assaying a set number of sample rejects and pulps at a secondary umpire laboratory.

The exploration work conducted by Kaminak was carried out using a quality assurance and quality control program meeting industry best practices for early stage exploration properties. Standardized procedures are used in all aspects of the exploration data acquisition and management including mapping, surveying, drilling, sampling, sample security, assaying, and database management.

During 2009, Kaminak did not implement specific analytical quality control measures to monitor the assay results delivered by Acme. The 2009 exploration program involved primarily soil sampling and trenching. Kaminak relied on the laboratory internal analytical quality control measures to monitor the reliability of assay results delivered by Acme.

With the beginning of core drilling in 2010, Kaminak began implementing external analytical quality control measures, in addition to choosing an ISO accredited primary laboratory. The analytical quality control measures involved the use of control samples (certified reference material, blanks, field duplicates) and independent check assaying at an umpire laboratory.

Certified reference materials were sourced from CDN Resource Laboratories Ltd. (CDN) of Langley, British Columbia. In 2013, Kaminak used eight standards, with certified assay values ranging from 0.268 to 9.38 gpt gold and one blank with a certified assay value of less than 0.01 gpt gold (Table 9). For 2011, 2012, and 2013 drill core samples, reverse circulation chip samples, and 2011 and 2013 trench samples, blanks and certified reference materials were alternated and inserted at a rate of one every 10 samples. For 2010 rock samples, certified reference materials were inserted approximately at a rate of one every 30 samples.

Field and laboratory duplicates were also inserted within the samples submitted for assaying. Field duplicate samples were collected by splitting the remaining half core in half and assigning a separate sample number out of sequence from the original samples. Reverse circulation field duplicates were collected by running the retention bag of the original sample through the riffle splitter, splitting a second sample from the original sample directly at the drill site. Laboratory duplicates are repeat assays on pulverized samples originally assayed by ALS Minerals.

In 2013, additional laboratory duplicates of cyanide shake test samples were taken at a rate of 1:50 total analysed samples.

**Table 9: Specifications of the Certified Control Samples Used by Kaminak in 2013**

Reference Material	Gold (gpt)	Standard Deviation (gpt)	Number of Samples
CDN-BL-10	<0.01	-	2,178
CDN-GS-P3C	0.268	0.01	46
CDN-GS-P7H	0.791	0.03	415
CDN-GS-1J	0.968	0.06	62
CDN-GS-1L	1.18	0.05	390
CDN-GS-2K	1.97	0.10	384
CDN-GS-3L	3.15	0.25	29
CDN-GS-6D	6.08	0.22	408
CDN-GS-9A	9.38	0.32	442

## 10.5 Comments

The Qualified Persons reviewed the field procedures and analytical quality control measures used by Kaminak. The analysis of the analytical quality control data is presented in Section 11 below. In the opinion of the Qualified Persons, Kaminak personnel used care in the collection and management of field and assaying exploration data.

In the opinion of the Qualified Persons, the sample preparation, security, and analytical procedures used by Kaminak are consistent with generally accepted industry best practices and are, therefore, adequate for the purpose of mineral resource estimation.



## 11 Data Verification

### 11.1 Verification by Kaminak

The exploration work carried out on the Coffee project was conducted by Kaminak personnel and qualified subcontractors. Kaminak implemented a series of routine verifications to ensure the collection of reliable exploration data. All work was conducted by appropriately qualified personnel under the supervision of qualified geologists. In the opinion of the Qualified Persons, the field exploration procedures used at Coffee generally meet industry practices.

The quality assurance and quality control program implemented by Kaminak is comprehensive and supervised by adequately qualified personnel. Exploration data were recorded digitally to minimize data entry errors. Core logging, surveying, and sampling were monitored by qualified geologists and verified routinely for consistency. Electronic data were captured and managed using an internally-managed Microsoft Access database, and backed up daily. Data from 2010 were managed by Maxwell Geoservices Inc. (“Maxwell”), and later in that season were managed by Kaminak personnel using Maxwell data management applications. In early 2011, the 2010 data were migrated to the internally-managed and internally-designed Microsoft Access database.

Assay results were delivered by the primary laboratory electronically to Kaminak and were examined for consistency and completeness. Kaminak personnel reviewed assay results for analytical quality control samples using bias charts to monitor reliability and detect potential assaying problems. Batches under review for potential failures were recorded in a quality control spreadsheet, investigated and corrective measures were taken when required.

The failure threshold for control samples was set at two times the standard deviation, based on recommended values provided by CDN Resource Laboratories Ltd. Quality control samples exceeding that threshold were investigated. Batches of barren samples containing a quality control failure were not re-assayed. Batches of samples containing more than one quality control failures were re-assayed completely. In batches containing one control sample failure, samples surrounding the failed control sample were re-assayed. After review, Kaminak requested either partial or complete batches of samples be re-assayed by ALS Minerals (Table 10). Re-assayed batches passed the quality control failure thresholds and were accepted. The assay database was updated, accordingly.

**Table 10: Count of Batch Re-runs by Year**

Year	Number of Sample Batches Partially or Wholly Re-assayed
2010	44
2011	28
2012	31
2013	19

## **11.2 Verifications by the Authors of this Technical Report**

### **11.2.1 Site Visit**

In accordance with National Instrument 43-101 guidelines, the Qualified Person visited the property on several occasions during active drilling. Robert Sim, P. Geo. (APEGBC#24076) visited the property on three separate occasions; September 12-14, 2011, August 28-29, 2012 and May 15-16, 2013. Each visit was similar in process and Mr. Sim was given full access to all aspects of the project and all questions were addressed in an open and professional manner. Exploration activities were reviewed with site personnel and the nature of the ongoing interpretation of the geologic environment was discussed with Kaminak geologists. Drill core handling and sampling procedures were reviewed and inspected. Mr. Sim visited a series of drill sites and inspected ongoing diamond drilling and reverse circulation drilling activities. During the 2011 site visit, Mr. Sim randomly selected three representative samples from previously sawed drill core intervals. These samples were collected by Mr. Sim, transported to Vancouver and submitted to ALS Minerals laboratory for analysis. The resulting gold grades were similar to those present in Kaminak's sample database. It is Mr. Sim's opinion that Kaminak operates the Coffee project in a very organized and professional manner that follows accepted industry standards.

### **11.2.2 Verification of Analytical Quality Control Data**

Kaminak made available to the authors of this report exploration data in the form of a Microsoft Access database. This database aggregated the assay results for the quality control samples received to date, and was accompanied by comments from Kaminak personnel. The analysis of analytical quality control data produced by Kaminak prior to 2013 was discussed in the previous technical reports (Couture and Siddorn, 2011, Couture and Chartier, 2012, and Couture et al., 2013) and is not reproduced here.

The authors of this report aggregated the assay results for the external quality control samples for further analysis. Sample blanks and certified reference materials data were summarized on time series plots to highlight the performance of the control samples.

Paired data (field duplicate and check assays) were analysed using bias charts, quantile-quantile and relative precision plots. The analytical quality control data produced by Kaminak in 2013 are summarized in Table 11.

The external quality control data produced on this project represents 13.2 percent of the total number of samples (Table 11) submitted for assaying in 2013.

**Table 11: Summary of Analytical Quality Control Data Produced by Kaminak in 2013**

	Reverse Circulation Samples	(%)	Core Samples	(%)	Total	(%)	Comment
<b>Sample Count</b>	<b>28,056</b>		<b>10,411</b>		<b>38,467</b>		
Blanks		5.66%		5.69%		<b>5.66%</b>	
CDN-BL-10	1,586		592		<b>2,178</b>		<0.01 gpt Au
Reference Material	1,585	5.65%	591	5.68%	<b>2,176</b>	<b>5.66%</b>	
CDN-GS-P3C	46		0		<b>46</b>		
CDN-GS-P7H	297		118		<b>415</b>		
CDN-GS-1J	62		0		<b>62</b>		
CDN-GS-1L	285		105		<b>390</b>		
CDN-GS-2K	280		104		<b>384</b>		
CDN-GS-3L	14		15		<b>29</b>		
CDN-GS-6D	293		115		<b>408</b>		
CDN-GS-9A	308		134		<b>442</b>		
Field Duplicates	487	1.74%	243	2.33%	<b>730</b>	<b>1.89%</b>	
<b>Total QC Samples</b>	<b>3,658</b>	<b>13.04%</b>	<b>1,426</b>	<b>13.70%</b>	<b>5,084</b>	<b>13.21%</b>	
<b>Check Assays</b>							
Acme Labs	249	0.89%	153	1.45%	<b>402</b>	<b>1.04%</b>	Umpire Lab Testing

In general, the performance of the control samples (certified reference materials including both blanks and reference material) inserted with samples submitted for assaying used by Kaminak is acceptable (example presented in Figure 30a). ALS Minerals delivered assay results for the certified reference materials within two standard deviations of the mean for all eight reference material tested and less than the recommended value for the one blank, with few exceptions.

Assay results delivered by ALS Minerals of reference material reported less than six percent of the results falling outside of two standard deviations of the certified values for each standard. Few other potential failures identified in the data examined by the authors of this report can be related to sample mislabelling. Approximately only 1 percent of blanks returned assay values above 0.01 gpt gold (Figure 30b).

Paired assay data for field duplicates produced by ALS Minerals and examined by the authors of this report suggest that gold grades are difficult to reproduce. Rank half absolute difference (HARD) plots suggest that only 39.6 percent of the core field duplicate sample pairs and 55.7 percent of the reverse circulation field duplicate sample pairs have HARD below 10 percent (Figure 30c and Figure 30d). The poor reproducibility of field duplicate results is common in structurally hosted gold deposits. In general, however, the reproducibility is worse nearing the detection limits, as expected (Figure 30e).

Results from umpire laboratory testing in 2013 indicate good reproducibility and no significant deviation or bias in results between labs. HARD plots suggest 93.0 percent of the check assay sample pairs have HARD below 10 percent (Figure 30f)

In the opinion of the Qualified Persons, the analytical results delivered by ALS Minerals are sufficiently reliable to support mineral resource evaluation.

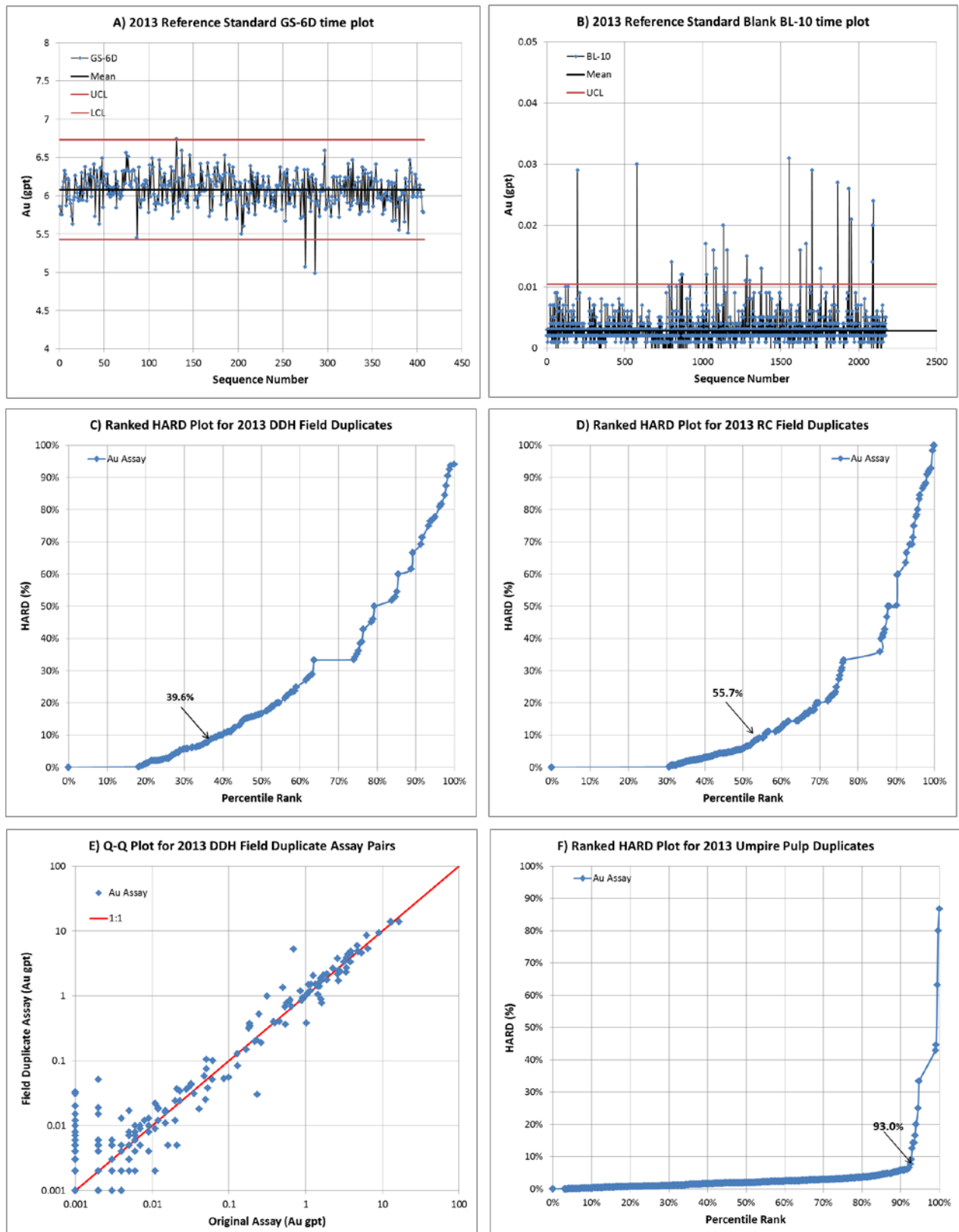


Figure 30: 2013 Selected QAQC plots



### **11.2.3 Database Verification**

Following the completion of the mineral resource models, the sample data from 15 randomly selected drill holes from the 2013 program, representing approximately 5% of the data, was exported from the MineSight® for validation purposes. The gold grades were manually compared to the values listed in certified assay certificates provided from the lab. Of the 1,964 samples checked, five samples had values that differ from the certified value. None of these errors are of any significance and are likely the results of multiple analysis of the same sample. This is well within the “acceptable” error rate of 1%. The results of the manual database verification indicate that the database is sound and sufficiently reliable to support the estimation of mineral resources.

## 12 Mineral Processing and Metallurgical Testing

### 12.1 Metallurgical Testing 2011 - 2012

In 2011 and 2012 Kaminak commissioned SRK to supervise preliminary metallurgical testing on core sample rejects collected on the Coffee Project. The metallurgical testing work was conducted by Inspectorate Exploration & Mining Services Ltd. (“Inspectorate”) of Richmond, British Columbia. Inspectorate conducted preliminary cyanide leaching tests including bottle roll, carbon in leach and carbon in pulp, and column leach. John Starkey, P.Eng., of Starkey & Associates Inc., an SRK associate metallurgist supervised the testing program. Metallurgical test work carried out from 2010 to 2012 is summarized in detail in the previous technical reports (2011, 2012, and 2013). Work completed in 2013 is described below.

### 12.2 Metallurgical Testing 2013

#### 12.2.1 Testing by Kappes, Cassiday, and Associates

##### Summary of Metallurgical Test Work

In June 2013, the laboratory facility of Kappes, Cassiday & Associates (KCA) in Reno, Nevada received sample material from the Coffee Project of Kaminak Gold Corporation. A total of seven (7) composites were generated and assigned unique sample numbers (KCA Sample Nos. 68151 through 68157). Each composite underwent head analyses, head screen analyses with assays by size fraction, bottle roll leach test work, agglomeration test work and column leach test work. Additionally, portions of material from KCA Sample No. 68157 (Latte, Sulphide composite) were utilized for comminution test work and flotation test work.

All preparation, assaying and metallurgical studies were performed utilizing accepted industry standard procedures.

##### Sample Receipt and Preparation

A summary of the samples utilized for each composite is presented in Table 12: Summary of Received Composite Samples.

**Table 12: Summary of Received Composite Samples**

KCA Sample No.	Sample Description	Number of Individual samples within composite	Received Weight, kg
68151	Supremo, Oxide	150	310.8
68152	Supremo, Upper Transition	130	127.7
68153	Supremo, Lower Transition	112	123.5
68154	Latte, Oxide	128	324.3
68155	Latte, Upper Transition	99	137.4
68156	Latte, Lower Transition	96	129.1
68157	Latte, Sulphide	73	99.5
<b>Total:</b>		<b>788</b>	<b>1252.4</b>

##### Head Analyses

Portions of the head material from each composite were ring and puck pulverized and analysed for gold by standard fire assay methods. Head material was also assayed semi- quantitatively for

an additional series of elements and for whole rock constituents. In addition to these semi-quantitative analyses, the head material was assayed by quantitative methods for carbon, sulphur and mercury. A cyanide shake test was also conducted on a portion of the pulverized head material.

In addition to the analyses on pulverized head material, portions of material from select crush sizes were utilized for head screen analyses with assays by size fraction.

For the Latte, Sulphide composite (KCA Sample No. 68157), an additional portion of head material was submitted to Phillips Enterprises, LLC for comminution test work.

A summary of the head analyses for gold are presented in Table 13.

**Table 13: Coffee Project Summary of Head Analyses – Gold**

KCA Sample No.	Description	Average Assay, Au (gpt)	Weighted Avg. Head Assay, Au (gpt)
68151	Supremo, Oxide	1.461	1.500
68152	Supremo, Upper Transition	1.227	1.482
68153	Supremo, Lower Transition	1.569	1.597
68154	Latte, Oxide	1.488	1.555
68155	Latte, Upper Transition	1.479	1.453
68156	Latte, Lower Transition	1.656	1.309
68157	Latte, Sulphide	2.469	2.333

Note (1): Weighted average assay value is the average of two (2) head screen analyses.

### Flotation Test Work

Portions of material from the Latte, Sulphide composite (KCA Sample No. 68157) were utilized for a two (2) phase kinetic flotation test program. The test work consisted of reagent scoping test work (Phase 1), followed by grind optimization test work (Phase 2) utilizing the results from the reagent scoping tests. Flotation tests were conducted in a laboratory-scale Denver flotation apparatus utilizing Reno municipal tap water. The products from each flotation test were individually assayed for gold, silver, copper, lead and total sulphur.

A total of four (4) reagent scoping tests were conducted utilizing various reagent combinations and concentrations. Each test was conducted utilizing material milled in a laboratory rod mill to the target size of 80% passing 0.075 millimetres. Utilizing the various reagent schemes, the reagent scoping tests showed that between 62% and 69% of the gold was concentrated into between 8.0% and 8.9% of the sample weight.

Utilizing the results from the reagent scoping test work, a total of four (4) grind size optimization tests were then conducted. The tests were conducted utilizing material milled to target grind sizes of 80% passing 0.150, 0.075, 0.053 and 0.045 millimetres. At the various grind sizes, the grind size optimization tests showed that between 58% and 72% of the gold was concentrated into between 9.8% and 10.5% of the sample weight.

### Comminution Test Work

A portion of the head material from the Latte, Sulphide composite was submitted to Phillips Enterprises, LLC in Golden, Colorado for comminution testing. Test work was completed to provide Bond Rod Mill and Ball Mill Work indices for the sample. The results of the

comminution test work were Rod Mill Work Index of 12.73 kwh/tonne and a Ball Mill Work Index of 15.06 kwh/tonne.

### Bottle Roll Leach Test Work

Bottle roll leach testing was conducted on a portion of material from each composite. For each test, a 1,000 gram portion of head material was milled in a laboratory rod mill to a target size of 80% passing 0.075 millimetres. The milled slurry was then utilized for a 96 hour bottle roll leach test conducted and maintained at a target concentration of 1.0 grams sodium cyanide per litre of solution.

A summary of the gold extractions from the bottle roll leach test work is presented in Table 14.

**Table 14: Summary of Bottle Roll Leach Test Work Gold Extraction**

KCA Sample No.	Description	Head Average, Au (gpt)	Calculated Head, Au (gpt)	Au Extracted, %	Consumption NaCN, kg/t	Addition Ca(OH) <sub>2</sub> , kg/t
68151	Supremo, Oxide	1.461	1.436	94%	1.29	1.50
68152	Supremo, Upper Transition	1.227	1.447	78%	2.12	1.00
68153	Supremo, Lower Transition	1.569	1.639	53%	1.45	1.00
68154	Latte, Oxide	1.488	1.570	92%	1.27	1.50
68155	Latte, Upper Transition	1.479	1.369	51%	1.15	1.50
68156	Latte, Lower Transition	1.656	1.462	38%	1.57	1.50
68157	Latte, Sulphide	2.469	2.460	13%	1.35	1.50

### Agglomeration Test Work

Preliminary agglomeration test work was conducted on portions of crushed material from each composite except the Latte, Sulphide composite (KCA Sample No. 68157). The purpose of the percolation tests was to examine the permeability of the material under various cement agglomeration levels. The percolation tests were conducted in small (75 millimetre inside diameter) columns at a range of cement levels with no compressive load applied.

For the Supremo, Oxide and Latte, Oxide composites agglomeration tests were conducted utilizing 2 kilogram portions of the material crushed to the target sizes of 80% passing 25 and 12.5 millimetres, and agglomerated with 0, 2, 4 or 8 kilograms cement per tonne of dry ore.

For the Supremo, Upper and Lower Transition and Latte, Upper and Lower Transition composites agglomeration tests were conducted utilizing 2 kilogram portions of the material crushed to the target size of 80% passing 12.5 millimetres, and agglomerated with 0, 2, 4 or 8 kilograms cement per tonne of dry ore.

All agglomeration tests passed the criteria put forth by KCA. It was determined from this testwork that the column leaching would be undertaken without the use of agglomeration. The pH of the material was low in the tests which did not utilize cement. Table 15 presents a summary of the agglomeration testing.



**Table 15: Summary of Agglomeration Tests**

Description	Target p80 Size, mm	Cement, kg/t dry ore	Initial Height, cm	Final Height, cm	Slump, %	Slump Result	Flow Result	Visual Estimate of % Pellet Breakdown	Pellet Result	Overall Test Result
Supremo, Oxide	25	0	27.94	27.94	0%	Pass	Pass	N/A	N/A	Pass
	25	2	29.21	29.21	0%	Pass	Pass	5	Pass	Pass
	25	4	28.58	28.58	0%	Pass	Pass	<3	Pass	Pass
	25	8	28.58	28.58	0%	Pass	Pass	<3	Pass	Pass
Supremo, Oxide	12.5	0	28.58	28.58	0%	Pass	Pass	N/A	N/A	Pass
	12.5	2	29.85	29.85	0%	Pass	Pass	<3	Pass	Pass
	12.5	4	29.21	29.21	0%	Pass	Pass	<3	Pass	Pass
	12.5	8	29.85	29.85	0%	Pass	Pass	<3	Pass	Pass
Supremo, Upper Transition	12.5	0	27.31	27.31	0%	Pass	Pass	N/A	N/A	Pass
	12.5	2	29.21	29.21	0%	Pass	Pass	5	Pass	Pass
	12.5	4	28.58	28.58	0%	Pass	Pass	<3	Pass	Pass
	12.5	8	29.21	29.21	0%	Pass	Pass	<3	Pass	Pass
Supremo, Lower Transition	12.5	0	26.67	26.67	0%	Pass	Pass	N/A	N/A	Pass
	12.5	2	27.94	27.94	0%	Pass	Pass	5	Pass	Pass
	12.5	4	29.21	29.21	0%	Pass	Pass	<3	Pass	Pass
	12.5	8	27.94	27.94	0%	Pass	Pass	<3	Pass	Pass
Latte, Oxide	25	0	26.04	26.04	0%	Pass	Pass	N/A	N/A	Pass
	25	2	27.31	27.31	0%	Pass	Pass	5	Pass	Pass
	25	4	29.21	29.21	0%	Pass	Pass	<3	Pass	Pass
	25	8	28.58	28.58	0%	Pass	Pass	<3	Pass	Pass
Latte, Oxide	12.5	0	24.77	24.77	0%	Pass	Pass	N/A	N/A	Pass
	12.5	2	27.31	27.31	0%	Pass	Pass	10	Pass	Pass
	12.5	4	28.58	28.58	0%	Pass	Pass	<3	Pass	Pass
	12.5	8	29.21	29.21	0%	Pass	Pass	<3	Pass	Pass
Latte, Upper Transition	12.5	0	26.67	26.67	0%	Pass	Pass	N/A	N/A	Pass
	12.5	2	26.04	26.04	0%	Pass	Pass	5	Pass	Pass
	12.5	4	26.67	26.67	0%	Pass	Pass	<3	Pass	Pass
	12.5	8	27.31	27.31	0%	Pass	Pass	<3	Pass	Pass
Latte, Lower Transition	12.5	0	24.13	24.13	0%	Pass	Pass	N/A	N/A	Pass
	12.5	2	24.13	24.13	0%	Pass	Pass	5	Pass	Pass
	12.5	4	24.77	24.77	0%	Pass	Pass	<3	Pass	Pass
	12.5	8	25.40	25.40	0%	Pass	Pass	<3	Pass	Pass

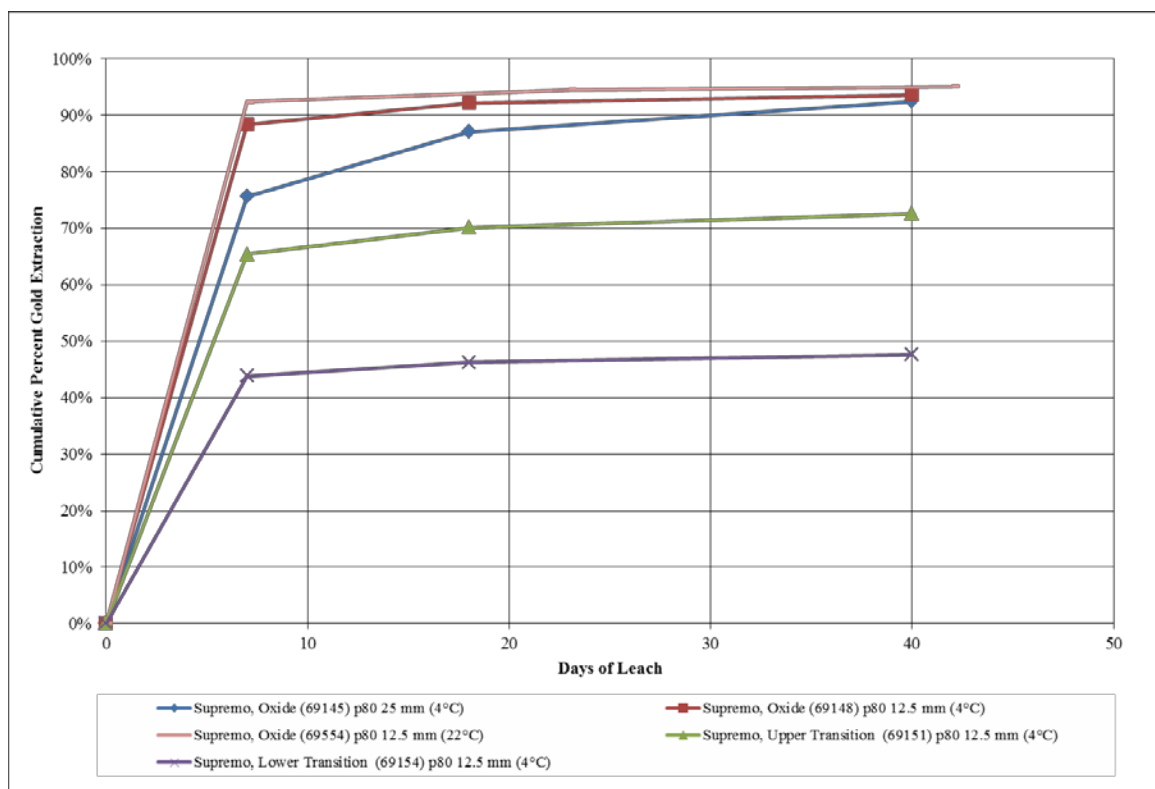
### Column Leach Test Work

A total of ten (10) column leach tests were conducted utilizing material crushed to a target size of 80% passing 25 or 12.5 millimetres. During testing, the material was leached for 40 or 42 days with a sodium cyanide solution. Tests were conducted in an enclosed refrigeration unit at a target temperature of 4°C. A single test was conducted at ambient temperature (approximately 22°C).

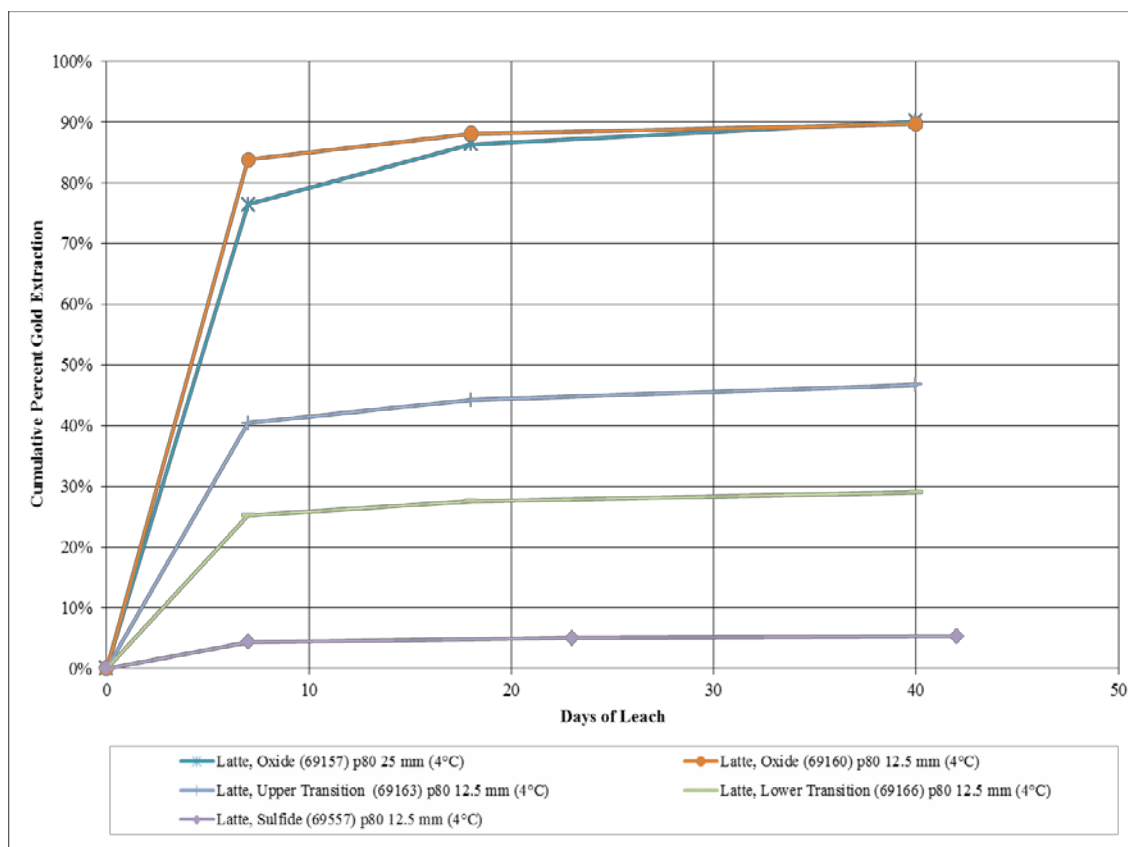
A summary of the column leach test work is presented in Table 16. For each group of samples (Supremo and Latte), a graphical presentation of gold extraction over time is presented in Figure 31 and Figure 32.

**Table 16: Summary of Column Leach Test Work**

Description	Target p80 Size, mm	Target Temp., °C	Calculated Head, Au (gpt)	Extracted, Au (gpt)	Extracted, % Au	Consumption NaCN, kg/t	Addition Hydrated Lime, kg/t
Supremo,	25	4	1.573	1.455	92%	0.17	1.51
Supremo,	12.5	4	1.435	1.343	94%	0.28	1.50
Supremo,	12.5	22	1.547	1.471	95%	0.52	1.57
Supremo,	12.5	4	1.488	1.081	73%	0.31	1.00
Supremo,	12.5	4	1.674	0.797	48%	0.38	1.00
Latte, Oxide	25	4	1.622	1.462	90%	0.19	1.51
Latte, Oxide	12.5	4	1.540	1.382	90%	0.27	1.51
Latte, Upper	12.5	4	1.535	0.717	47%	0.46	2.01
Latte, Lower	12.5	4	1.416	0.411	29%	0.64	1.51
Latte, Sulphide	12.5	4	2.365	0.126	5%	0.46	1.51



**Figure 31: Supremo Composites – Column Leach Tests Gold Extractions**



**Figure 32: Latte Composites – Column Leach Tests Gold Extractions**

## Discussion

The head values for gold obtained in this test program compared well, showing an overall agreement between head grades and calculated heads sourced from the various parts of the test program.

For the Supremo, Oxide material, three (3) column leach tests were conducted to compare the extraction values of material leached at two (2) particle sizes (80% passing 25 and 12.5 millimetres) and leach temperatures (4°C and 22°C). A comparison of gold extractions from the 25 and 12.5 millimetre leached material showed an increase from 92% to 94%, with respect to particle size reduction. A similar comparison of the material leached at 4°C and 22°C, showed a gold extraction increase from 94% to 95% and a sodium cyanide consumption increase from 0.28 to 0.52 kilograms per metric tonne of ore, with respect to increased temperature. Based on KCA's experience, sodium cyanide consumption is not directly related to test temperature and any observed increase in consumption is likely an abnormality.

For the Latte, Oxide material, two (2) column leach tests were conducted to compare the extraction values of material leached at two (2) different particle sizes (80% passing 25 and 12.5 millimetres). A comparison of gold extractions from the 25 and 12.5 millimetre leached material did not show any obvious gold extraction increase with respect to particle size reduction. Gold extraction percentages were at 90% for both particle sizes.

Column test extraction results were based upon carbon assays vs. the calculated head (carbon assays + tail assays). For the column leach tests conducted, the calculated heads based on carbon and solution assays compared well with each other.

When an outside party submits samples, KCA can estimate gold extraction for an ore body based upon the assumption that the ore to be mined will be similar to the samples tested. For feasibility study purposes, KCA normally discounts laboratory gold extractions by two to three percentage points when estimating field extractions. Based upon KCA's experience with mostly clean non-reactive ores, cyanide consumption in production heaps would be only 25 to 33 percent of the laboratory column test consumptions.

For the column leach tests conducted on each group of samples (Supremo and Latte), a comparison of the gold extraction percentages with sulphide sulphur content showed a correlation of lower gold extractions with greater sulphide sulphur content. A summary comparing gold extraction and sulphur speciation is presented in Table 17. For each sample group, a graphical presentation of gold extraction versus sulphide content is presented in Figure 33 and Figure 34.

**Table 17: Column Leach Test Gold Extraction vs. Sulphur Speciation**

KCA Sample No.	Description	Column Extracted, % Au	Total Sulphur, %	Sulphide Sulphur, %	Sulphate Sulphur, %
68151	Supremo, Oxide	94%	0.10	0.06	0.04
68152	Supremo, Upper Transition	73%	0.15	0.05	0.09
68153	Supremo, Lower Transition	48%	0.47	0.30	0.17
68154	Latte, Oxide	90%	0.16	0.02	0.14
68155	Latte, Upper Transition	47%	1.03	0.70	0.33
68156	Latte, Lower Transition	29%	1.27	0.93	0.34
68157	Latte, Sulphide	5%	1.55	1.32	0.23



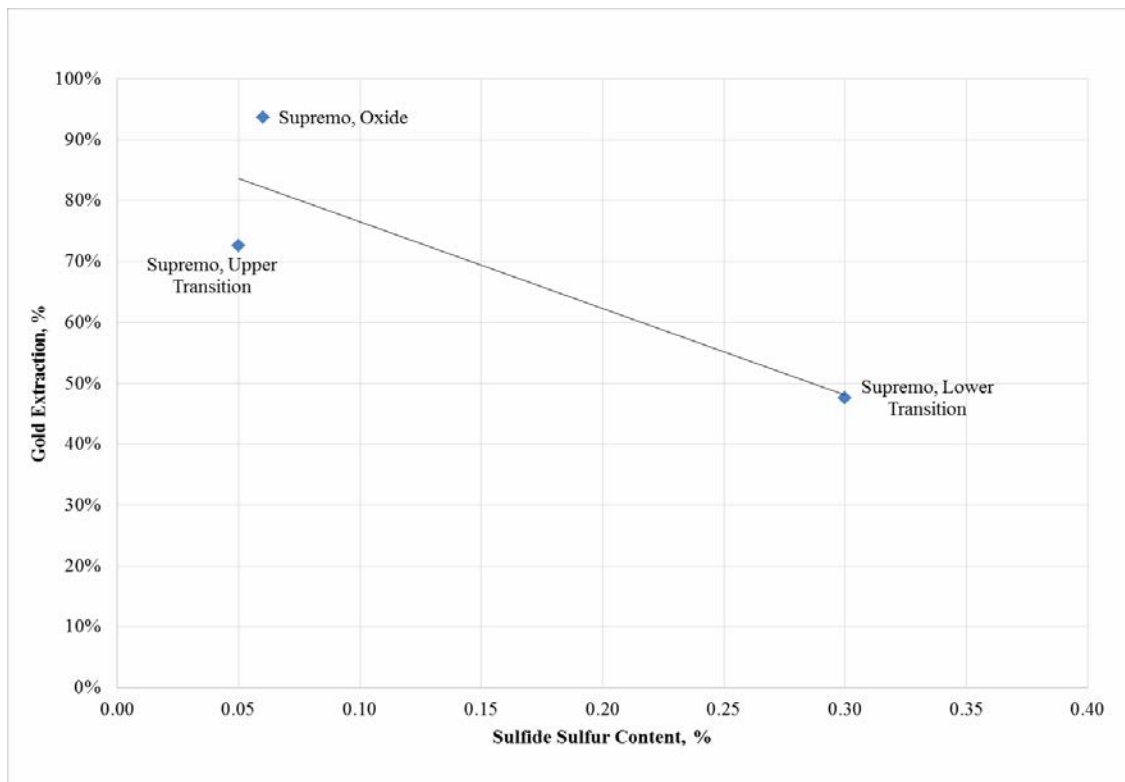


Figure 33: Supremo Composites Gold Extraction vs. Sulphide Content

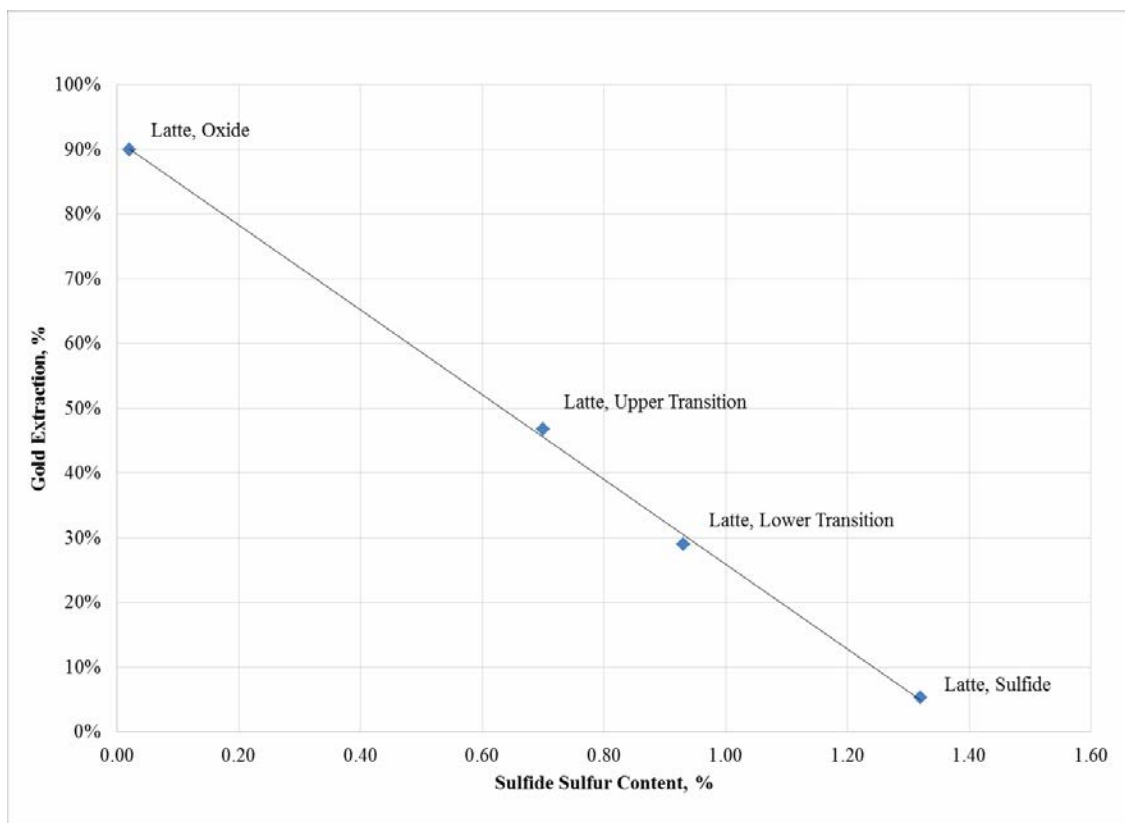


Figure 34: Latte Composites Gold Extraction vs. Sulphide Content

## 12.2.2 Cyanide Soluble Gold Test Work

Categorization of oxidation has in the past been undertaken via visual estimation of the proportion of Oxide and Sulphide. The oxidation profile at Coffee is variable from surface downwards and along the mineralized structures. Thus, the manual interpretation method is unlikely to be detailed enough to accurately assess the quantity and distribution of oxidation. In particular, the internal variability within Transitional material can be considerable. Presently, the Transitional is simply divided into an 'Upper' and 'Lower' zone based on  $\geq 50\%$  oxidized material and  $\leq 50\%$  oxidized material respectively. As can be seen from Table 17 above although the visual estimate of the amount of oxidation for the upper and lower transitional material at both Supremo and Latte were targeted to be similar, the actual sulphide content of the Latte samples was much higher.

The poorer recoveries from the Latte Transitional material are felt to be a result of a visual underestimation of sulphide in those samples.

In order to better evaluate the amenability and variability of Transitional material to metallurgical cyanide leach recovery, over 8,000 samples representing 70% of all samples above a fire assay value of 0.3g/t Au within mineralized intercepts drilled from the initial drilling year of 2010 up to and including 2013, have been subjected to a cyanide soluble assay. The cyanide soluble assays were performed by ALS Laboratories (Au-AA13 method).

The difference between the cyanide soluble assay and the original fire assay, on an individual assay by assay basis, or across composites made up of equivalent samples, may be utilized to provide an indication of the gold within the sample that is amenable to cyanide leach. By extension, it also indicates the amount of oxidation of the sample. The cyanide soluble proxy gold recovery is the percentage of the fire assay value actually reporting to the leach solution.

A comparison of the column leach test recoveries at the 0.5 inch crush size from the KCA testing program, and the cyanide soluble assays from the same samples as used in the testing composites, is presented in Table 18 below.

**Table 18: Cyanide Soluble Recovery versus Column Leach Recovery**

Sample Description	Gold Recovery %		Recovery Ratio Column Test: Cyanide Soluble
	Column Test	Cyanide Soluble	
Supremo, Oxide	94%	98.4%	0.96
Supremo, Upper Transition	73%	78.2%	0.93
Supremo, Lower Transition	48%	51.2%	0.94
Latte, Oxide	90%	91.2%	0.99
Latte, Upper Transition	47%	46.5%	1.00
Latte, Lower Transition	29%	32.5%	0.89

The strong correlation of the cyanide soluble recovery and the actual column leach test recovery indicates that cyanide soluble recovery is a reliable method to map the metallurgical recovery throughout the Oxide, Transitional and Sulphide zones of the Coffee Deposit.

## 13 Mineral Resource Estimate

### 13.1 Introduction

The Mineral Resource Statement presented herein represents the second mineral resource evaluation prepared for the Coffee project in accordance with the Canadian Securities Administrators' National Instrument 43-101.

The mineral resource estimation process was a collaborative effort between Kaminak Gold Inc. (Kaminak) and SIM Geological Inc. (SIM Geological). The interpretation of the geologic model was prepared by Kaminak personnel and was reviewed by SIM Geological and used as resource domains to constrain grade estimation. The geostatistical analysis, variography, selection of resource estimation parameters, construction of the block model, and the conceptual pit optimization work were completed by Mr. Robert Sim, P.Geo. of SIM Geological, with the assistance of Bruce Davis, FAusIMM of BD Resource Consulting Inc. Based on his education; work experience that is relevant to the style of mineralization and deposit type under consideration and to the activity undertaken; and, membership to a recognized professional organization, Mr. Sim, is a Qualified Person pursuant to National Instrument 43-101 and independent from Kaminak. The effective date of the Mineral Resource Statement is January 28, 2014.

This section of the technical report describes the resource estimation methodology and summarizes the key assumptions considered by SIM Geological to prepare the resource model for the gold mineralization at the Coffee project. In the opinion of the Qualified Persons, the resource evaluation reported herein is a reasonable representation of the gold mineralization found in the Coffee project at the current level of sampling. The mineral resource has been estimated in conformity with generally accepted CIM *Estimation of Mineral Resource and Mineral Reserves Best Practices Guidelines* and is reported in accordance with the Canadian Securities Administrators' National Instrument 43-101. Mineral resources are not mineral reserves and they do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into a mineral reserve upon application of modifying factors.

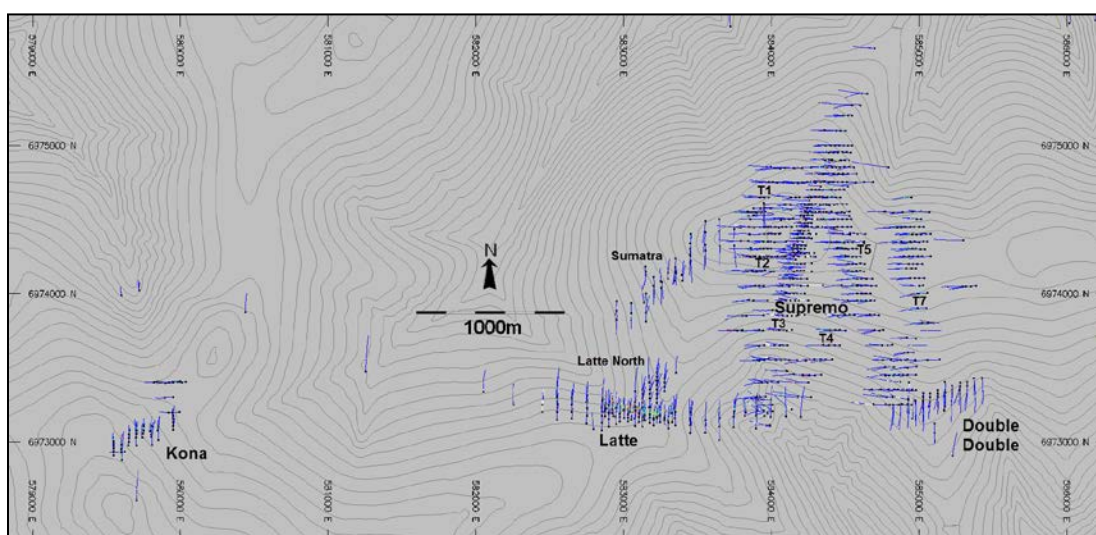
Estimates of mineral resources for the Supremo, Latte, Double Double and Kona deposit areas are prepared using three-dimensional block models based on geostatistical applications, and are created using commercial mine planning software (MineSight® v8.20). The project limits are based on the local UTM coordinate system (NAD83 Zone7). The block size varies between deposit areas: 5 x 5 x 2 metres at Kona and Double Double, and increasing to 10 x 5 x 3 metres at Latte and Supremo. The long axis of the blocks is aligned with the strike of the zone, and the shorter dimension is aligned across the strike direction. The database was developed by Kaminak during exploration programs conducted during the summer field seasons of 2010 through 2013.

Mineral resource estimates are generated using drill hole sample assay results and the interpretation of a geologic model that relates to the spatial distribution of gold in the deposits. Interpolation characteristics were defined based on a combination of the geology, drill hole spacing, and geostatistical analysis of the data. The mineral resources are classified according to their proximity to the sample locations and are reported, as required by NI 43-101, according to the CIM *Definition Standards for Mineral Resources and Mineral Reserves* (November 2010).

## 13.2 Available Data

There are a total of 961 individual drill holes in the project database with a total of 185,171 metres of drilling; 352 holes (82,977 metres) are diamond drill core holes and 609 holes (102,194 metres) were drilled using reverse circulation drilling rigs.

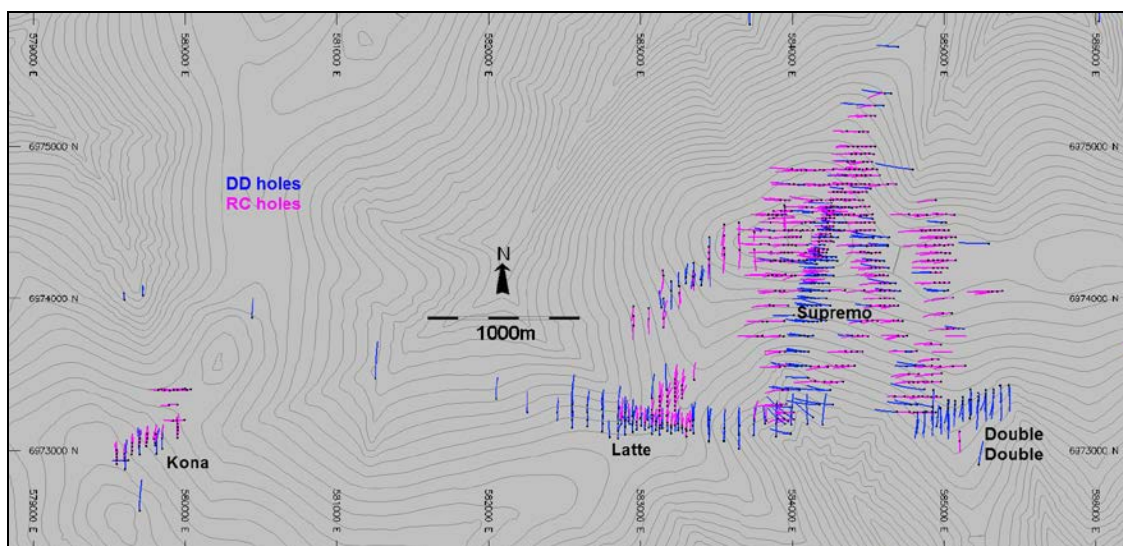
The majority of the drilling is conducted with holes located on north-south or east-west oriented cross sections and is designed to intersect the interpreted mineralized zones at right angles. Where holes are fanned from a single setup, the pierce angles between drill holes, and the typically steep-dipping target horizons, become smaller with depth. In such cases, Kaminak will often drill parallel holes on-section from individual setup locations. Overall, drilling has been conducted on a systematic pattern throughout the majority of the areas containing mineral resources. The distribution of drill holes is shown in plan in Figure 35.



**Figure 35: Plan View Showing the Distribution of Drill Holes and Deposit Areas**

Analysis of gold assay data shows that there is no apparent grade distribution difference between diamond drill and reverse circulation samples. The distribution of diamond drill (DD) and reverse circulation (RC) holes is shown in Figure 36. There are areas where DD holes are more prevalent (Latte, Double Double and Supremo T3) and other areas the RC drilling has been more widely utilized.





**Figure 36: Distribution of Diamond Drill (DD) and Reverse Circulation (RC) Drill Holes**

The project database includes resource delineation drilling plus other drill holes that test surrounding exploration targets. Only drill holes that intersect the structural zone domains in each of the deposit areas have been considered for use in the resource models. A summary of the drill holes used in the resource models for the four deposit areas is listed in Table 19. Drilling at the south end of T7 during 2013 intersected a new zone that trends in an east-west direction and has been interpreted to represent a northern extension of the Double Double deposit.

**Table 19: Summary of Drilling Used in Each Model Area to Estimate Mineral Resources**

Deposit	Number of Holes	Drilling (metres)
Supremo	596	101,540
Latte	192	41,112
Double Double	52	13,327
Kona	39	6,273
<b>Total</b>	<b>581</b>	<b>116,329</b>

The majority of the drilling was conducted on cross sections oriented north-south or east-west and designed to intersect at approximately right angles to the strike orientation of the mineralized zones.

The majority of drilling at Double Double and Kona was conducted on north-south sections, spaced at 50-metre intervals. The majority of on-section holes intersect the target horizon at 25 to 50 metre intervals down the dip plane.

Drilling at Latte was initially conducted on north-south sections spaced at 100-metre intervals, with pierce points at 50-metre intervals along the dip plane. During the 2013 drilling program, the central portion of the Latte deposit was delineated with 50 metre spaced drill holes on north-south sections spaced at 25 metre intervals. This distribution of drilling increases the confidence in the resource estimate allowing for the designation of a portion of the Latte resource in the Indicated category.

Additional drilling identified two new southwest-northeast trending zones proximal to the Latte deposit; Latte North located immediately north of the main Latte zone and Sumatra, located approximately 700m north the of Latte.

Drilling at Supremo is conducted on east-west -oriented cross sections, typically spaced at 50-metre intervals, with pierce points spaced at 25 to 50 metre intervals on each section. For a strike distance of almost 550 metres in the central part of the T3 zone, detailed drilling was conducted on sections spaced at 25 metres with on-section holes at 25 metre intervals. This density of drilling allows for a portion of the T3 resource to be included in the Indicated category.

The section spacing increases to 100 metres, with on-section pierce points at 25-metre intervals, at the north end of T3, and the southern ends of T3, T4, and T5. Rather than fan multiple holes from single setups, most drill holes at Supremo have unique setup locations that result in parallel holes that consistently intersect the target horizon at approximately right angles.

At the end of each drilling campaign, the drill hole collar locations are surveyed using a differential GPS. The collar location of each drill hole correlates very well with the local digital terrain (topographic) surface.

Although elevated arsenic values can often identify the structural zones in drilling, only the fire assay (total) gold data has been extracted from the assay database and imported into MineSight® for use in the development of the resource models. The statistical summary of the available gold sample data for each deposit area is presented in Table 20.

**Table 20: Statistical Summary of Gold Assay Data**

Element	Count	Total Length (metres)	Minimum	Maximum	Mean <sup>(1)</sup>	Std. Dev.
Supremo	78,735	104,683	0.001	86.800	0.214	1.501
Latte	35,131	40,018	0.001	48.700	0.253	1.264
Double Double	18,796	12,955	0.001	120.250	0.226	2.600
Kona	5,927	6,209	0.001	36.500	0.211	0.996

<sup>(1)</sup> Statistics are weighted by sample length.

During the 2013 field season, Kaminak added a series of 8,344 samples tested for cyanide soluble gold (AuCN) analysis using ALS method Au-AA13 (cold cyanide shake test). These samples were conducted on pulp rejects and target fire assay grades greater than 0.3g/t gold. The locally sparse distribution of these samples, coupled with the fact that they target only higher-grade material, does not support the ability to directly estimate AuCN grades in model blocks. However, ratios of AuCN/total Au were used to support the interpretation of a series of oxide zones that represent domains with differing metallurgical properties.

Additional data used in the interpretation of the geologic model includes lithologic designations obtained during geologic logging of the drill core and reverse circulation chips. Surface geologic mapping has provided the location of the structures on surface. Kaminak provided a topographic digital terrain surface as a gridded point file (x, y, z) that was originally produced using contour lines spaced at 10-metre intervals. This data was originally derived from a LiDAR survey of the property conducted by Eagle Mapping in 2010.

Individual sample intervals range from 0.1 metres to 7 metres in length and average 1.23 metres. The standard sample interval for a diamond drill hole is 1 metre, except at Double Double where 2012 drilling was sampled on 0.5-metre intervals. Reverse circulation drilling is sampled on 1.52-metre (5 foot) intervals.

Bulk density measurements were conducted for 5,328 samples in the database. Specific gravity measurements are typically made at 10-metre intervals down most of the diamond drill holes. The frequency of specific gravity measurements may be increased within the structural zones.

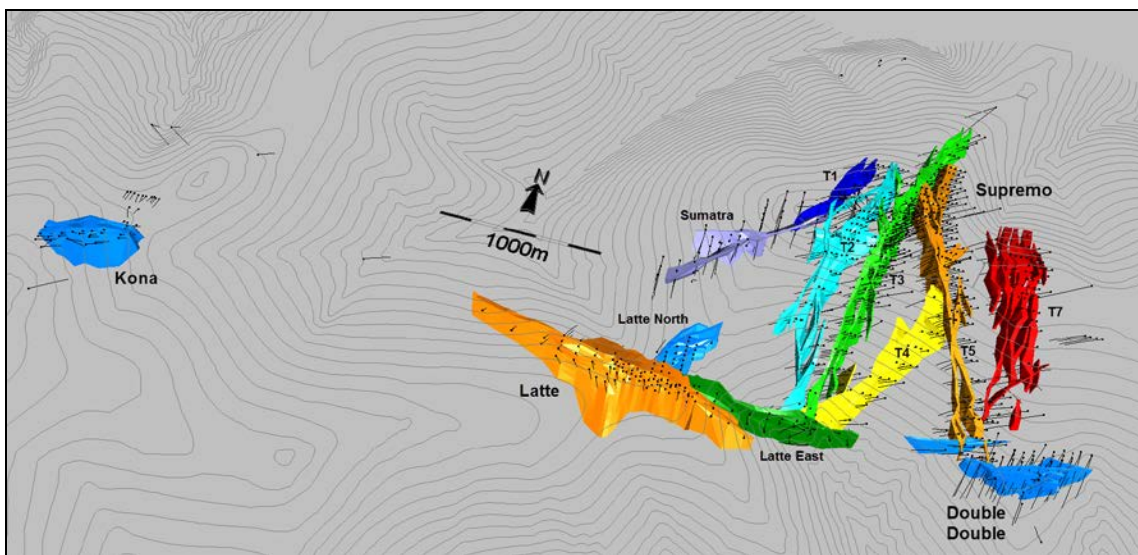
Recovery data is available for essentially all diamond drill holes with an average of 95 percent. Ninety-four percent of the sample intervals show recoveries greater than 80 percent, and about 1% of sample intervals have recoveries below 50 percent. There is no apparent relationship between recovery and gold content. Recovery data is not available for reverse circulation drilling. Personal site inspection of the procedures indicates that recoveries are very good. There is a loss of very fine dust during drilling, but this represents a very small volume of material and it is not believed to affect the samples to any measurable degree. Numerous reverse circulation reject samples were observed in the field; they show very consistent sample sizes which is a reflection of the nature of reverse circulation recoveries throughout the drilling process. There were no adjustments or omissions to the database in response to diamond drill or reverse circulation recoveries.

### 13.3 Geologic Model and Estimation Domains

Gold mineralization at Coffee is located within a series of steeply dipping structures that cross-cut all rock units on the property. The structural zones are identified in the drill core and from surface mapping and trenching. Soil sampling has also located favourable horizons in many areas which have been subsequently drilled. Although the nature of these structural zones can exhibit a variety of characteristics, including faulting, brecciation, silicification, alteration, and local sulphide veining, they can be traced with regularity over strike lengths greater than 2 km.

A series of structural domains have been interpreted in each resource area using a combination of surface mapping, geologic core (and reverse circulation chip) logging, and the distribution of gold grades in drilling sample data. These structural domains represent the known geologic conditions that have the potential to host gold mineralization. In addition, Kaminak geologists have developed a more detailed interpretation within each structural domain that represents the interconnected nature of the (generally) higher-grade gold mineralization. Although it is believed that the gold mineralization is interconnected between drill holes, the detailed interpretation typically isolates only the higher-grade samples and represents a somewhat optimistic selection of the data between drill holes. It is felt that using the larger structural domains is a more appropriate approach to developing a resource model which includes some degree of internal dilution in the estimate. This may be considered a more conservative approach but, as the project evolves and the density of drilling data increases, the nature and continuity of gold mineralization is reflected in the block model.

The extent of these structural domains is shown in Figure 37. The individual areas at Supremo, (T1, T2, T3, T4, T5, and T7) are named after the trenches that were initially used to investigate the surface mineralization in these areas.

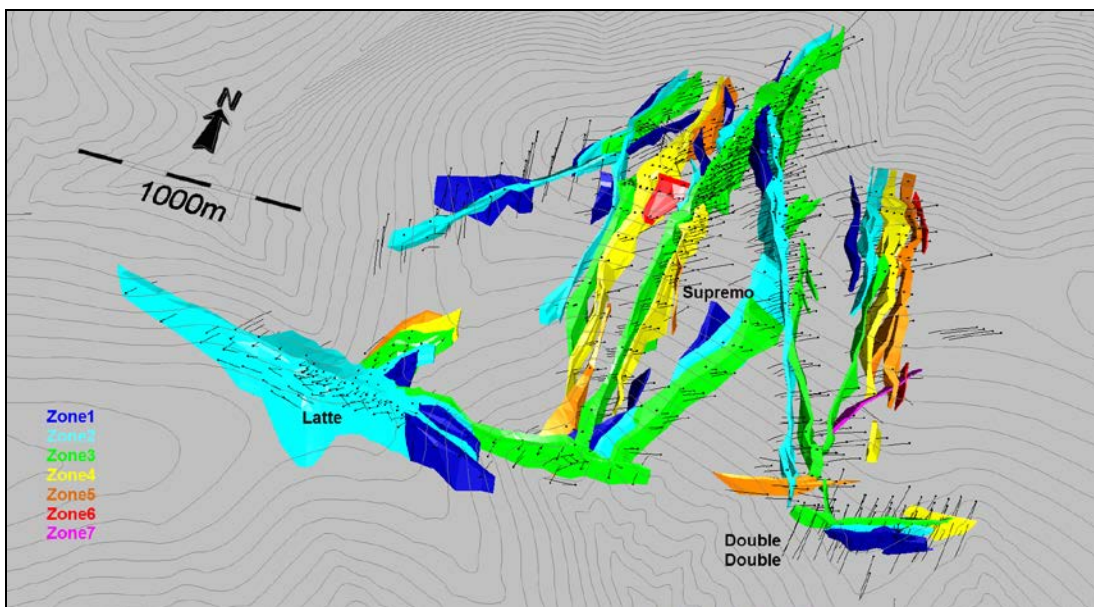


**Figure 37: Structural Domains at Supremo, Latte, Double Double, and Kona**

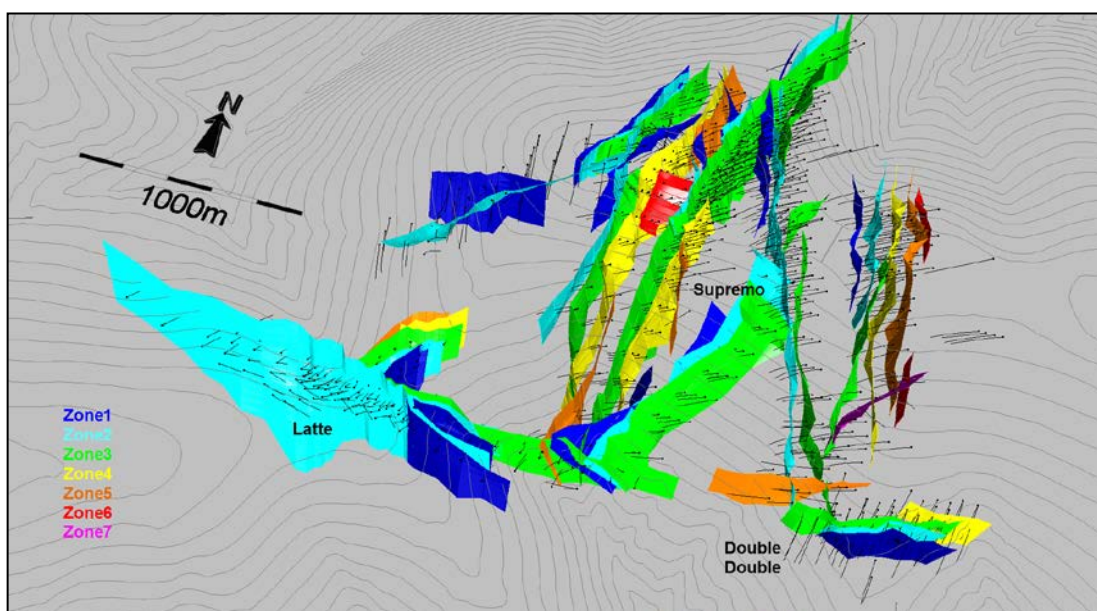
Each deposit area is comprised of a series of sub-parallel, braided structural domains that coalesce and bifurcate along the general strike-orientation of the zone. Individual structural zones have been sub-divided for modeling purposes, and, within each zone, a three-dimensional plane was interpreted that represents the overall trend of the gold mineralization. These *trend planes* are then used to orient search directions so that samples of a similar nature are related during grade interpolation in the block model. This approach introduces a dynamic, anisotropic search process that reproduces the locally complex, undulating, and banded nature of the gold mineralization in the block model that would otherwise be impossible to achieve using traditionally-oriented search ellipses. The overall distribution of gold in the block model is similar to the detailed interpretation domains, but, as previously stated, some degree of internal dilution has been incorporated into the process.

Figure 38 shows the individual zones defined at Supremo, Latte, and Double Double. Figure 39 shows the trend planes defined for each individual structural zone at Supremo, Latte, and Double Double.





**Figure 38: Individual Structural Zone Domains Defined at Supremo, Latte, and Double Double**



**Figure 39: Planes Representing Trends of Mineralization in Each Structural Zone**

During the 2013 field season, Kaminak undertook a sampling program testing for the cyanide soluble characteristics of the gold in the deposit. Samples selected for AuCN analysis were restricted to intervals where total gold grades are greater than 0.3g/t. This data is reasonably distributed but, because it excludes lower-grade sample intervals, is not sufficient to support direct estimation of AuCN estimates in model blocks. As an alternative, the ratio of AuCN/total Au has been calculated in samples where AuCN data is present. These ratios are then interpolated in the block model and are utilized in combination with qualitative (visual) estimates of the

intensity of oxidation, to provide information regarding the depth and intensity of oxidation in the structural domains.

Oxidation appears to be channelled along the structural corridors that host the deposits. It is common to find intense oxidation at depths of over 200m below surface. Strong oxidation is present over the majority of the Supremo and Double Double deposits. Oxidation is less pervasive at Latte, extending to about 125m below surface in some areas. As a result, a higher proportion of the resource at Latte is characterised by moderate or transitional amounts of oxidation.

Four oxide types or domains have been interpreted for the Coffee deposit as described below. The oxide zone is relatively consistent and supported but a large proportion of the data. The degree of oxidation is often highly variable in the two (upper and lower) transition zones as reflected by the oxidation percentage ranges listed below.

Oxide zone: intense to pervasive oxidation. (>90-95% oxidation).

Upper Transition zone: moderate to intense oxidation (50-90% oxidation).

Lower Transition zone: weak to moderately oxidized (10-50% oxidation).

Sulphide zone: Fresh to weakly oxidized rocks (<10% oxidation).

A surface representing the base of colluvial overburden was also generated and all mineral zone domains have been truncated at this interface. Although overburden is present across most of the deposit areas, it is typically less than 5 metres thick.

## 13.4 Compositing

Compositing drill hole samples standardizes the database for further statistical evaluation. This step eliminates any effect the sample length may have on the data.

To retain the original characteristics of the underlying data, a composite length that reflects the average original sample length is selected: a too long composite can sometimes result in a degree of smoothing that can mask certain features of the data. The majority of samples were taken at two standard lengths: 1.00 metre in diamond drilling, and 1.53 metres in reverse circulation drilling, with an average of 1.18 metres. A standard composite length of 1.00 metre was used for geostatistical analysis and grade estimation.

Drill hole composites are length-weighted and are generated *down-the-hole*, meaning composites begin at the top of each hole and are generated at 1 metre intervals down the length of the hole. Composites honour the structural domain contacts (in other words, individual composites begin and end at the point where a drill hole crosses the domain boundary). Several holes were randomly selected and the composited values were checked for accuracy. No errors were found.

## 13.5 Exploratory Data Analysis

Exploratory data analysis (EDA) involves statistically summarizing the database to better understand the characteristics of the data that may control grade. One of the main purposes of EDA is to determine if there is evidence of spatial distinctions in grade. This would require the separation and isolation of domains during interpolation. The application of separate domains prevents unwanted mixing of data during interpolation, and the resulting grade model will better

reflect the unique properties of the deposit. However, applying domain boundaries in areas where the data is not statistically unique may impose a bias in the distribution of grades in the model. A domain boundary, which segregates the data during interpolation, is typically applied if the average grade in one domain is significantly different from another. A domain boundary may also be applied where a significant change in the grade distribution exists across the contact.

### 13.5.1 Basic Statistics by Domain

Summary statistics are evaluated using a series of boxplots; these boxplots compare the individual structural zone domains in each model area. Examples from the four deposit areas are shown in Figure 40, Figure 41, Figure 42, and Figure 43.

There are differences between the individual structural zones, and these typically show higher gold content compared to the surrounding samples. Note the variability between some of the individual structural zones. Some of the interpreted zones contain relatively low amounts of gold.

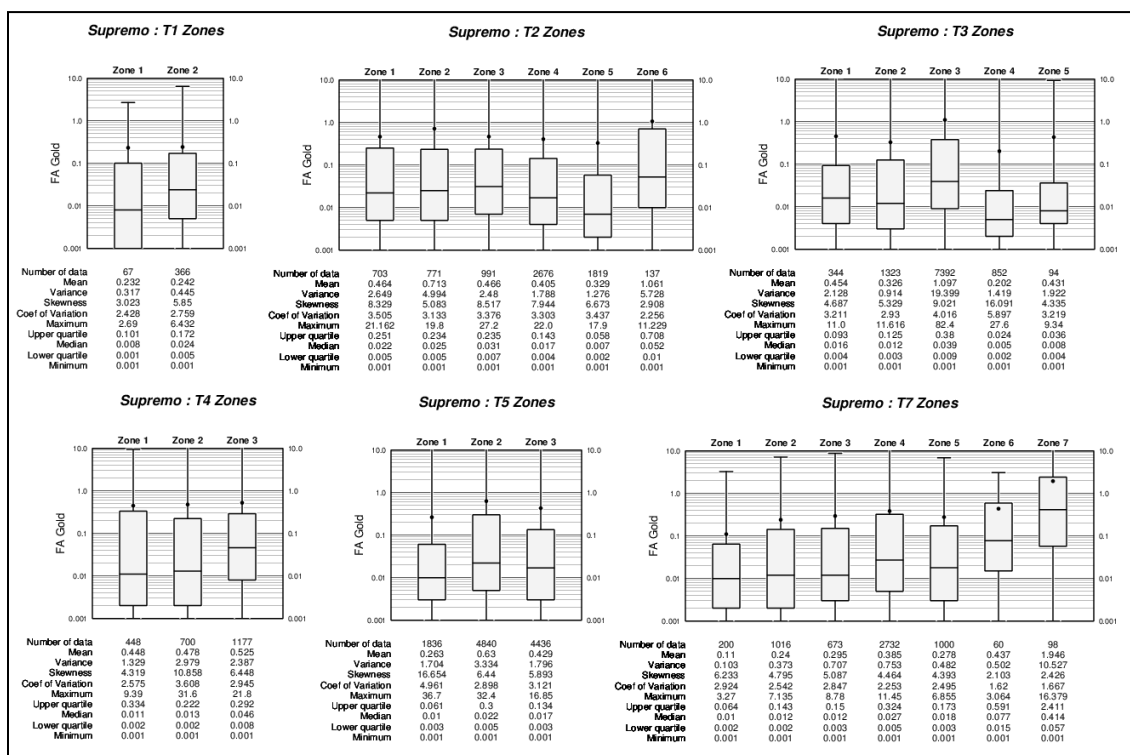


Figure 40: Boxplot for Gold in Structural Zone Domains at Supremo

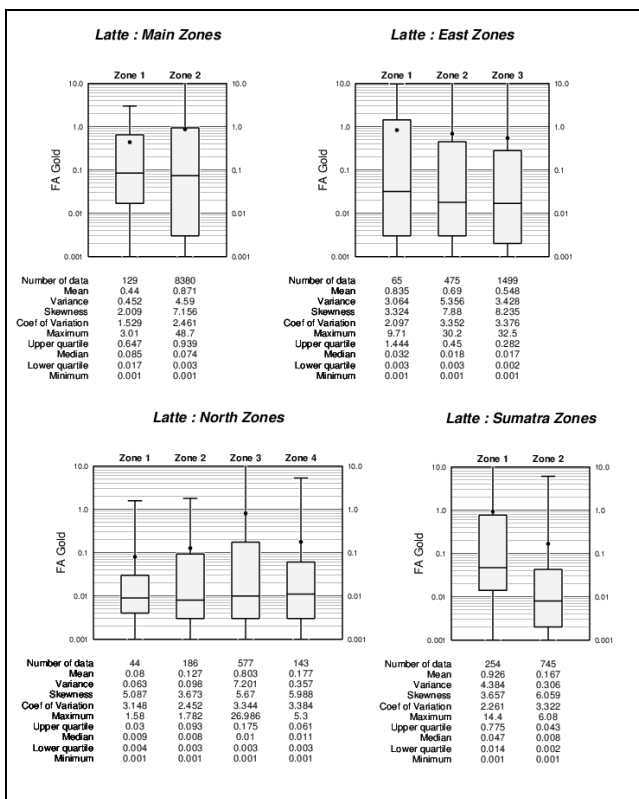


Figure 41: Boxplot for Gold in Structural Zone Domains at Latte

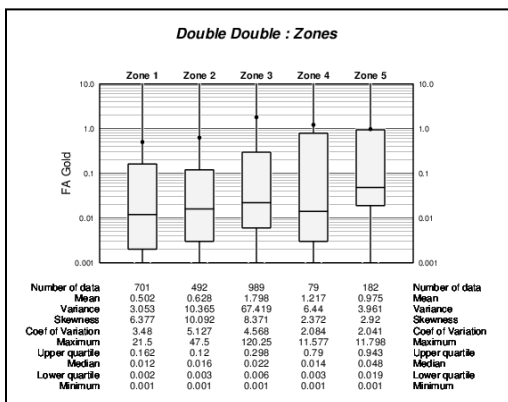


Figure 42: Boxplot for Gold in Structural Zone Domains at Double Double

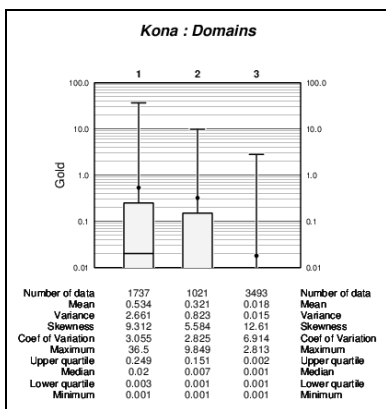


Figure 43: Boxplot for Gold in Structural Zone Domains at Kona

The boxplot in Figure 44 shows the distribution of total gold in the oxide domains at Supremo and Latte. Gold grades tend to be higher in the oxide and decrease marginally with depth. There is significant overlap between domains.

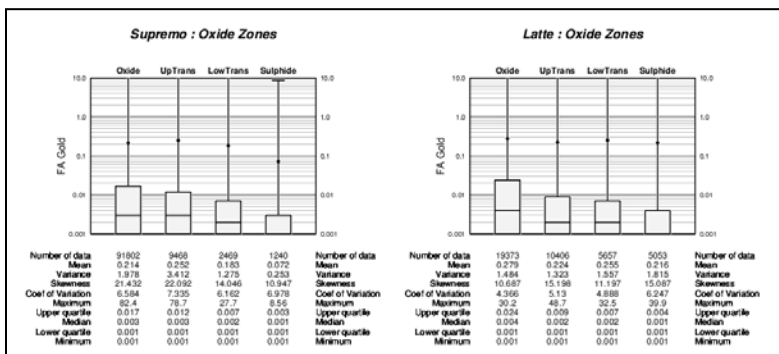


Figure 44: Boxplot for (total) Gold in Oxide Domains at Supremo and Latte

The distribution of AuCN data by Oxide domain is shown in Figure 45. The AuCN grades differ between domains but there is some local variability in the data which results in the relative spread in the data within each domain. It is important to note the decrease in data density with depth, especially at Supremo.

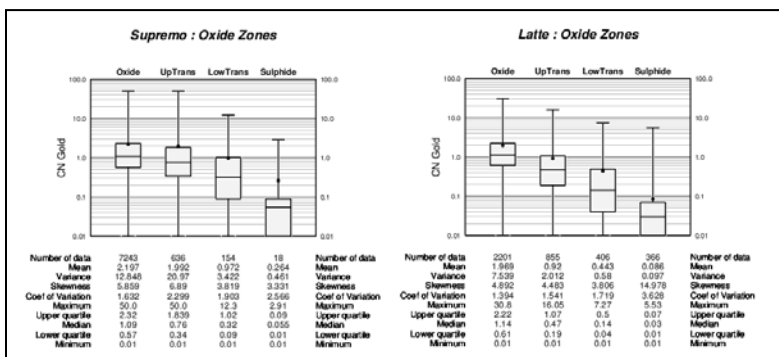


Figure 45: Boxplot for Cyanide Soluble Gold in Oxide Domains at Supremo and Latte



Figure 46 shows the AuCN/Au ratios in the various oxide domains at Supremo and Latte. The interquartile range of data in the Oxide and Sulphide domains tends to be quite restricted suggesting these domains are well defined and supported by the sample data (although the amount of AuCN data in sulphide rocks is limited in most areas). The two transition zones show a much wider range of values suggesting a mix from fully oxidized to essentially fresh (sulphide) rocks.

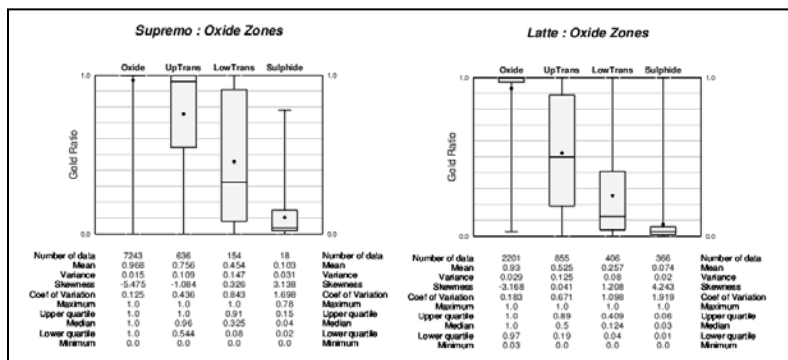


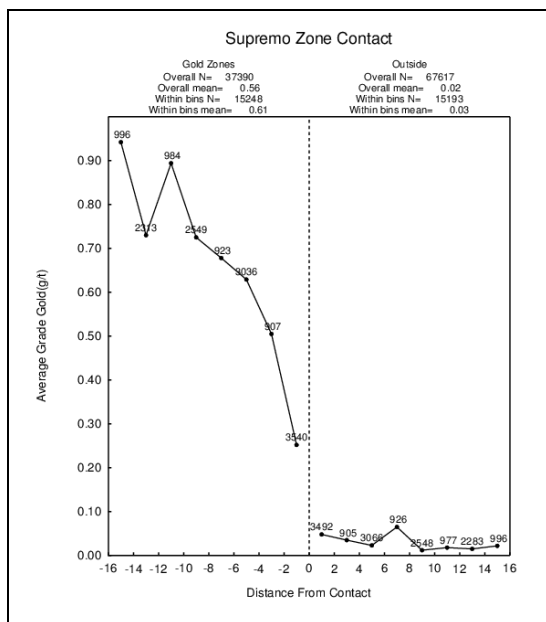
Figure 46: Boxplot for AuCN/Au Ratios in Oxide Domains at Supremo and Latte

It is felt that the interpretation of the oxide domains is reasonable at this relatively early stage of the project evaluation. The nature of oxidation in these deposits is considered significant with respect to density factors and metallurgical properties. The AuCN data provides a sound basis for evaluating these properties. Limited AuCN data exists in some deposit areas (especially at depth) and additional sampling is recommended to support future studies.

### 13.5.2 Contact Profiles

Contact profiles evaluate the nature of grade trends between two domains; they graphically display the average grades at increasing distances from the contact boundary. Those contact profiles that show a marked difference in grades across a domain boundary indicate that the two datasets should be isolated during interpolation. Conversely, if a more gradual change in grade occurs across a contact, the introduction of a *hard* boundary (in other words, segregation during interpolation) may result in much different trends in the grade model; in this case, the change in grade between model domains is often more abrupt than the trends seen in the raw data. Finally, a flat contact profile indicates that there are no grade changes across the boundary; in this case, *hard* or *soft* domain boundaries will produce similar results in the model.

A series of contact profiles were generated that compare sample data inside compared to sample data outside of the interpreted structural zone domains. Figure 47 shows an example from Supremo. There is a marked difference in gold grade between samples inside the structural zones compared to the surrounding data. This trend is similar for all deposit areas.



**Figure 47: Contact Profile Comparing Samples Inside/Outside the Structural Domains at Supremo**

### 13.5.3 Modeling Implications

Boxplots show that similarities and differences exist between the gold content of the individual structural zones in each of the deposit areas, but, overall, the individual structural zones all differ from samples located outside of the domains. This feature is also supported by the contact profiles that show the structural zone domains contain gold grades that exceed those in surrounding sample data. The author concludes that the interpreted structural zone domains contain data that is sufficiently different than surrounding sample data and these data should be segregated during model grade interpolations.

Although the results show that some differences exist between individual structural zones, they tend to be somewhat subtle. The individual structural zones represent individual bands of mineralization. The segregation of these zones is primarily based on differences in the trends and continuity of the mineralization rather than differences in grade between zones. Therefore, segregation of these zones allows for better reproduction of the interpreted trends of gold mineralization in the resource model.

Indications are that the degree of oxidation can be quite variable as it transitions from true oxide to sulphide material. Gold solubility ratios have been utilized to aid in the interpretation of these domains and they represent areas with similar oxidation properties. The generalization of the degree of oxidation through the transition zones is considered appropriate from a selectivity aspect as it is unlikely that different degrees of oxidation can be practically separated in these areas during mining. It is felt that these oxide domains are appropriate for initial (PEA –level) studies.

### 13.5.4 Conclusions

Each deposit area contains two or more individual structural zones that are used as hard boundary domains during the development of the resource model. This means that data is not mixed between zones during block grade interpolation. The resulting structural zone domains are

summarized in Table 21. Note that the area outside of the structural zone is essentially barren and shows no potential for economic gold resources. No grade estimates were conducted outside of the structural zone domains.

**Table 21: Summary of Estimation Domains**

Area	Comments
<b>Supremo</b>	
T1 area	3 structural zones. Sub-vertical trending 30° azimuth.
T2 area	6 structural zones. The main zone has a strike length of over 1.5km. All with approximately 15° azimuth and -70° dip to the east.
T3 area	5 structural zones. One zone extends over 2km with 20° azimuth and -80° dip to the east. The other 4 zones are less continuous but similar orientation. T3 contains some of the higher grade resources on the property.
T4 area	3 structural zones with 35° azimuth and -70° dip to the south-east. The larger of the 3 zones has strike length of about 1 km.
T5 area	3 structural zones. One of which has a strike length of over 1.6 km. In general, these have 345° azimuth and -80° dip to the east. The north end of T5 swings sub-parallel to T3.
T7 area	7 structural zones that trend north-south and are vertically oriented.
<b>Latte</b>	
Main area	2 structural zones. A thicker main zone with 110° azimuth and -65° dip to the south. A second zone is a “splay” extending from the east end of the Main zone.
East area	3 structural zones extending on the east end of the deposit area. Sub-vertical, east-west trending, zones with variable strike length up to 1.2km.
North area	5 structural zones interpreted as splays from the Main zone with 55° azimuth and -60° dip SE.
Sumatra	2 structural zones approximately 700m north of the Main Latte deposit. Trend 55° and dip -60° NW. Interpreted to merge to the east into T2 zone at Supremo.
<b>Double Double</b>	
<b>Kona</b>	
	5 structural zone domains with 255° azimuth and -85° dip to the north.
	2 structural zone domains with 70° azimuth and -85° dip to the south.

## 13.6 Specific Gravity Data

The methodology used to generate the specific gravity database is described in detail in Section 10.3 of this report.

There are a total of 5,328 samples tested for bulk density (SG). Approximately 40% of these samples occur inside of one of the interpreted structural domains and the remaining 60% of the data represents rocks outside of the mineralized domains. Although there is a relatively large specific gravity database, and the frequency of samples is generally quite good, the fact that these measurements have only been conducted on diamond drill core holes results in a lack of specific gravity data for both Kona and parts of Supremo and Latte. It is felt that the distribution of specific gravity data is insufficient to interpolate individual values in model blocks. However, there is sufficient data present to generate average values that can be used to calculate resource tonnages.

In the previous (November 2012) resource estimate, an average bulk density of 2.56 t/m<sup>3</sup> was applied to all blocks inside of the structural domains. The mean density of 2.56 t/m<sup>3</sup> remains the same following the addition of approximately 900 additional density samples collected in 2013.

The distribution of density data has been analysed within the structural domains in each deposit area. A relationship exists between the density of rocks and the intensity of oxidation, a common feature in deposits of this type. There are differences between the deposit areas but these tend to be minor and may be influenced by the distribution of available SG data.

Table 22 lists the range, mean and standard deviation of densities by oxide domain. Although the average density of samples in the oxide domain average  $2.51 \text{ t/m}^3$ , it is felt that this is influenced by the distribution of available data and by several outliers. An average density of  $2.54 \text{ t/m}^3$  is considered appropriate for oxide zone material. The average specific gravity values used to calculate tonnages in each of the oxide zones is considered reasonable based on the current data.

**Table 22: Summary of Specific Gravity Data by Oxide Domain**

Domain	Proportion of SG data	Range min/max, ( $\text{t/m}^3$ )	Avg. Inside Structural domains, ( $\text{t/m}^3$ )	Standard Deviation	Avg. Assigned to model, ( $\text{t/m}^3$ )
Oxide	52%	1.74 – 3.79	2.51	0.17	2.54
Upper Transition	27%	1.54 – 3.08	2.58	0.16	2.58
Lower Transition	11%	1.37 – 2.94	2.63	0.17	2.65
Sulphide	10%	2.37 – 3.01	2.69	0.09	2.70

Near-surface blocks in overburden have been assigned a density of  $1.90 \text{ t/m}^3$ .

## 13.7 Evaluation of Outlier Grades

Histograms and probability plots were generated to show the distribution of gold in each structural zone. These were used to identify the existence of outlier grades in the composite database. The physical location of these potential outlier samples were reviewed in relation to the surrounding data. It was decided that, in most cases, potential outlier samples would be controlled through a combination of traditional top-cutting and the use of outlier limitations during block grade interpolation. An outlier limitation approach limits samples above a defined threshold to a maximum distance of influence during grade estimation. In most cases, a maximum range of 30 metres was applied to outlier samples. A 50-metre range was used in areas of Latte and Supremo where drill hole spacing increases to 100 m or more. The various thresholds and the resulting effects on the model areas are listed in Table 23.

The reduction in gold metal in all areas is considered reasonable for this deposit at this stage of evaluation. The relatively high reduction at Double Double is due to the small size of this deposit and the presence of a few very high grade composites.

**Table 23: Summary of Capping Levels and Outlier Limitations Applied**

Domain	Maximum, Au (gpt) <sup>(1)</sup>	Top-cut Limit, Au (gpt)	Outlier Limitation, Au (gpt) <sup>(2)</sup>	% Metal Lost <sup>(3)</sup>
<b>Supremo</b>				
T1 - Zone1	2.69	-	-	
T1 - Zone2	6.43	-	5	-8.6%
T1 - Zone3	13.55	-	6	
T2 - Zone1	21.16	-	10	
T2 - Zone2	19.80	-	15	
T2 - Zone3	27.20	-	10	
T2 - Zone4	22.00	-	15	-5.7%
T2 - Zone5	17.90	-	10	
T2 - Zone6	11.23	-	10	
T3 - Zone1	11.00	-	-	
T3 - Zone2	11.62	-	-	
T3 - Zone3	82.40	70	50	-6.3%
T3 - Zone4	27.60	15	10	
T3 - Zone5	9.34	-	7	
T4 - Zone1	9.39	-	7	
T4 - Zone2	31.60	20	10	-3.6%
T4 - Zone3	21.80	-	15	
T5 - Zone1	36.70	20	10	
T5 - Zone2	32.40	-	20	-3.1%
T5 - Zone3	16.85	-	15	
T7 - Zone1	3.27	-	-	
T7 - Zone2	7.14	-	5	
T7 - Zone3	8.78	-	5	
T7 - Zone4	11.45	-	-	-2.4%
T7 - Zone5	6.86	-	5	
T7 - Zone6	3.06	-	2	
T7 - Zone7	16.37	-	10	
All Supremo domains combined				-4.9 %
<b>Latte</b>				
Main - Zone1	4.20	-	2	-2.1%
Main - Zone2	48.70	35	25	
East - Zone1	9.71	-	5	
East - Zone2	30.20	20	15	-13.0%
East - Zone3	32.50	20	15	
North - Zone1	1.58	-	-	
North - Zone2	1.78	-	-	
North - Zone3	26.99	-	15	-5.9%
North - Zone4	5.30	-	3	
North - Zone5	4.34	-	3	
Sumatra - Zone1	14.40	-	10	-5.1%
Sumatra - Zone2	6.08	-	5	
Latte Combined (Incl. Sumatra)				-5.1%
<b>Double Double</b>				
Zone1	21.50	-	12	
Zone2	47.50	25	15	-16.5%
Zone3	120.25	70	50	
Zone4	11.58	-	-	
Zone5	11.80	-	8	
<b>Kona</b>				
Zone1	36.500	15	10	-3.0%
Zone2	9.849	-	-	

<sup>(1)</sup> 1 metre composites.

<sup>(2)</sup> Influence of composites above threshold limited to maximum 30 metres during grade interpolation in zones where drilling is at 50m intervals or less. Where drilling is spaced at 100m or more, the outlier limit maximum distance is increased to 50 metres (Latte East and North, Supremo T4 and parts of T3 and T7).

<sup>(3)</sup> Loss in metal in resource model limited to blocks within a maximum distance of 50 metres from drilling.



## 13.8 Variography

The degree of spatial variability and continuity in a mineral deposit depend on both the distance and direction between points of comparison. Typically, the variability between samples is proportionate to the distance between samples. If the variability is related to the direction of comparison, then the deposit is said to exhibit *anisotropic* tendencies which can be summarized by an ellipse fitted to the ranges in the different directions. The semi-variogram is a common function used to measure the spatial variability within a deposit.

The components of the variogram include the nugget, the sill, and the range. Often samples compared over very short distances (including samples from the same location) show some degree of variability. As a result, the curve of the variogram often begins at a point on the y-axis above the origin; this point is called the *nugget*. The nugget is a measure of not only the natural variability of the data over very short distances, but also a measure of the variability which can be introduced due to errors during sample collection, preparation, and assaying.

Typically, the amount of variability between samples increases as the distance between the samples increase. Eventually, the degree of variability between samples reaches a constant or maximum value; this is called the *sill*, and the distance between samples at which this occurs is called the *range*.

The spatial evaluation of the data was conducted using a correlogram instead of the traditional variogram. The correlogram is normalized to the variance of the data and is less sensitive to outlier values; this generally gives cleaner results.

Correlograms were generated for the distribution of gold in the various areas using the commercial software package Sage 2001© developed by Isaacs & Co. Due to a lack of available information in some areas, sample data from multiple structural zones was combined to generate correlograms. Multidirectional correlograms were generated from composited drill hole samples and the results are summarized in Table 24.

Correlograms were generated using relative distances from the trend planes rather than the true sample elevations. This approach essentially flattens out each structural zone during interpolation relative to the defined trend plane. A variety of correlograms were generated including raw 1 m composites, capped distributions, indicator variograms and ones produced using 3 m composite samples. Properties of these various models contributed to the final parameters believed to appropriately represent the spatial distribution of gold in the deposit areas.

**Table 24: Gold Variogram Parameters**

Area/Domain	Nugget	S1	S2	1st Structure			2nd Structure			
				Range (m)	AZ	Dip	Range (m)	AZ	Dip	
Supremo T1	0.300	0.500	0.200	36	0	41	44	0	25	
				Spherical	22	180	49	33	180	65
					5	90	0	5	90	0
Supremo T2	0.250	0.650	0.100	13	0	77	5102	180	7	
				Spherical	5	90	0	355	0	83
					3	180	13	5	90	0
Supremo T3	0.200	0.700	0.100	21	0	54	3848	0	8	
				Spherical	10	90	0	257	180	82
					2	180	36	10	90	0
Supremo T4	0.300	0.622	0.078	69	0	0	462	180	89	
				Spherical	10	0	90	14	0	1
					5	90	0	5	90	0
Supremo T5	0.250	0.600	0.150	11	0	86	900	0	45	
				Spherical	5	90	0	342	180	45
					2	180	4	5	90	0
Supremo T7	0.250	0.650	0.100	17	0	3	800	0	-1	
				Spherical	5	90	0	391	180	89
					4	180	87	5	90	0
Latte Main	0.200	0.650	0.150	29	270	45	563	90	53	
				Spherical	6	0	0	68	90	-37
					3	270	-45	6	0	0
Latte East	0.250	0.400	0.350	27	270	-44	181	90	-6	
				Spherical	6	0	0	6	0	0
					2	270	46	5	270	-84
Latte North	0.350	0.550	0.100	14	90	70	77	90	44	
				Spherical	5	270	20	25	270	46
					5	0	0	5	0	0
Sumatra	0.250	0.600	0.150	24	90	7	67	90	-29	
				Spherical	5	0	0	30	90	61
					4	270	83	5	0	0
Double Double	0.375	0.581	0.044	21	90	-82	250	90	-1	
					10	270	-8	185	270	-89
				Spherical (capped to 5g)	5	0	0	5	0	0
Kona	0.300	0.589	0.111	20	270	-4	4779	270	-2	
				Spherical	9	90	-86	439	90	-88
					5	0	0	5	0	0

Note: Correlograms modelled using sample data composited to 1 metre intervals.

## 13.9 Model Setup and Limits

Four block models were initialized in MineSight® with the dimensions defined in Table 25. Two block sizes were selected considering the current drill hole spacing and the selective mining unit (SMU) size that is considered appropriate for deposits of this type and scale. In all cases, the short axis is oriented across the strike of the deposit. The models are not rotated.

In comparison to the previous model extents, the Supremo model has been expanded to the west to include the new T1 area. The Latte model has been expanded to the west to cover extensions to the Main zone and to the north to include the Sumatra zone. The Double Double model has been expanded to the west to include a new sub parallel zone near the south end of the Supremo T7 zone.

**Table 25: Block Model Limits**

Direction	Minimum <sup>(1)</sup> (metre)	Maximum <sup>(1)</sup> (metre)	Block Size (metre)	Number of Blocks
<b>Supremo</b>				
East	583,450	585,160	3	570
North	6,973,100	6,975,500	10	240
Elevation	650	1320	5	134
<b>Latte</b>				
East	581,800	584,400	10	260
North	6,972,810	6,974,505	3	565
Elevation	500	1,300	5	160
<b>Double Double</b>				
East	584,400	585,500	5	200
North	6,973,030	6,973,500	2	235
Elevation	600	1,130	5	106
<b>Kona</b>				
East	579,450	580,050	5	120
North	6,972,850	6,973,300	2	225
Elevation	950	1,320	5	74

<sup>(1)</sup> UTM coordinates (Nad83 datum, zone 7), elevation relative to mean sea level.

Using the domain wireframes, blocks in the model are assigned area and zone code values on a majority basis. Blocks with more than 50 percent of their volume inside a wireframe domain are assigned a zone code value of that domain.

The proportion of blocks within the structural zone domains is also calculated and stored within the model as a percentage. These values are used as a weighting factor to determine the volume and tonnage estimates.

Blocks are also assigned oxide codes on a majority basis. The portion of each block located below the topographic surface is stored as a percentage in each model block.

## 13.10 Interpolation Parameters

The block model grades for gold were estimated using ordinary kriging. Estimates were validated using the Hermitian Polynomial Change of Support model (Journel and Huijbregts, 1978), also known as the Discrete Gaussian Correction. The ordinary kriging models were generated with a

relatively limited number of composites to match the change of support or Herco (*Hermitian correction*) grade distribution. This approach reduces the amount of smoothing (also known as averaging) in the model and, while there may be some uncertainty on a localized scale, this approach produces reliable estimates of the potentially recoverable grade and tonnage for the overall deposit. The interpolation parameters are summarized by domain in Table 26.

**Table 26: Interpolation Parameters**

Area/ Domain	Search Ellipse Range (metre) <sup>(1)</sup>			Number of Composites			Other
	X	Y	Z	Minimum	Maximum	Maximum Per Hole	
Supremo T1	2	200	200	1	9	3	
Supremo T2	3	200	200	1	20	5	1 hole per quadrant
Supremo T3	3	200	200	1	20	5	1 hole per quadrant
Supremo T4	2	200	200	1	9	3	1 hole per quadrant
Supremo T5	3	200	200	1	20	5	1 hole per octant
Supremo T7	3	200	200	1	15	5	1 hole per quadrant
Latte	150	3	150	1	15	5	1 hole per quadrant
Double Double	150	2	150	1	6	2	1 hole per quadrant
Kona	150	3	150	1	6	2	1 hole per quadrant

<sup>(1)</sup> The longer ranges are oriented parallel to the mineralization trend planes. The shortest range is perpendicular to the plane of mineralization.

During grade estimation, search orientations were designed to follow a mineralization *trend* surface interpreted to represent the general trend of the mineralization in each of the structural zone domains (as described in Section 1.3).

The distance from this trend plane is assigned to all composited drill hole samples and model blocks and is used to replicate the undulating and banded nature of the deposit.

## 13.11 Block Model Validation

The block models were validated through several methods: a thorough visual review of the model grades in relation to the underlying drill hole sample grades; comparisons with the change of support model; comparisons with other estimation methods; and, grade distribution comparisons using swath plots.

### Visual Inspection

A detailed visual inspection of the block models was conducted in both section and plan to compare estimated grades with the underlying sample data. This included confirmation of the proper coding of blocks within the respective zone domains. The distribution of block grades was compared relative to the drill hole samples to ensure the proper representation in the model.

### Model Checks for Change of Support

The relative degree of smoothing in the block estimates was evaluated using the Hermitian Polynomial Change of Support model, also known as the Discrete Gaussian Correction. With this method, the distribution of the hypothetical block grades can be directly compared to the

estimated ordinary kriging model through the use of pseudo-grade/tonnage curves. Adjustments are made to the block model interpolation parameters until an acceptable match is made with the Herco distribution.

In general, the estimated model should be slightly higher in tonnage and slightly lower in grade when compared to the Herco distribution at the projected cut-off grade. These differences account for selectivity and other potential ore-handling issues which commonly occur during mining.

The Herco distribution is derived from the declustered composite grades which have been adjusted to account for the change in support moving from smaller drill hole composite samples to the larger blocks in the model. The transformation results in a less skewed distribution, but with the same mean as the original declustered samples. Examples of Herco plots from some of the models are shown in Figure 48.

Overall, the desired degree of correspondence between models has been demonstrated. The results indicate that the gold models are realistic representations of the gold grade distributions for the defined scale of selectivity (i.e. minimum mining unit size).

It should be noted that the change of support model is a theoretical tool intended to direct model estimation. There is uncertainty associated with the change of support model, and its results should not be viewed as an absolutely correct value. In cases where the model grades are greater than the change of support grades, the model is relatively insensitive to any changes to the modelling parameters. Any extraordinary measures to make the grade curves change are not warranted.



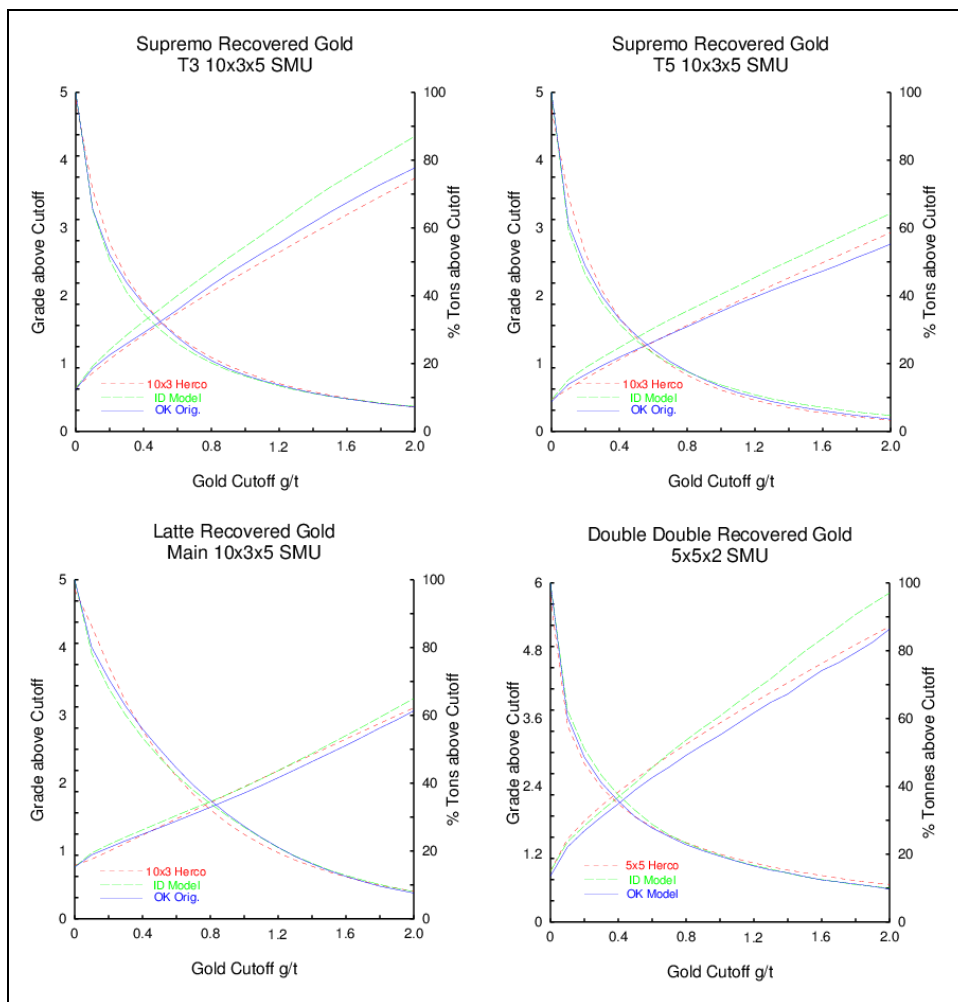
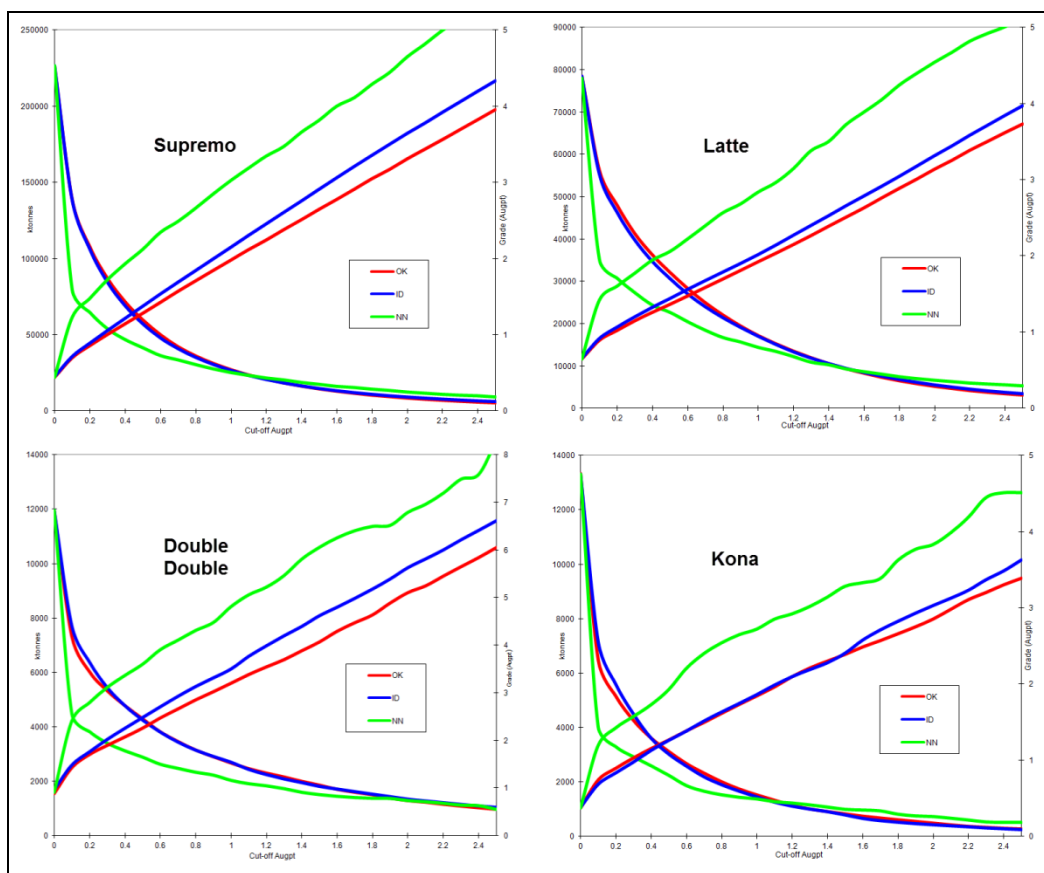


Figure 48: Examples of Herco Plots

### Comparison of Interpolation Methods

For comparison purposes, additional grade models were generated using the inverse distance weighted ( $ID^2$ ) and nearest neighbour (NN) interpolation methods. The nearest neighbour model was created using data composited to lengths equal to the short block axis. The results of these models are compared to the ordinary kriging (OK) models at various cut-off grades in a series of grade/tonnage graphs shown in Figure 49.

There is good correspondence between models at Supremo, Latte, and Kona. At Double Double, the results indicate that the ordinary kriging model is smoother than the inverse distance <sup>model</sup>.



**Figure 49: Comparison of Ordinary Kriging (OK), Inverse Distance (ID<sup>2</sup>) and Nearest Neighbour (NN) Models**

### Swath Plots (Drift Analysis)

A swath plot is a graphical display of the grade distribution derived from a series of bands, or swaths, generated in several directions throughout the deposit. Using the swath plot, grade variations from the ordinary kriging model are compared to the distribution derived from the declustered nearest neighbour grade model.

On a local scale, the nearest neighbour model does not provide reliable estimations of grade, but, on a much larger scale, it represents an unbiased estimation of the grade distribution based on the underlying data. Therefore, if the ordinary kriging model is unbiased, the grade trends may show local fluctuations on a swath plot, but the overall trend should be similar to the nearest neighbour distribution of grade.

Swath plots were generated in three orthogonal directions that compare the ordinary kriging and nearest neighbour gold estimates. Some examples of swath plots at various orientations are shown in Figure 50.

There is good correspondence between the models. The degree of smoothing in the ordinary kriging model is evident in the peaks and valleys shown in the swath plots.

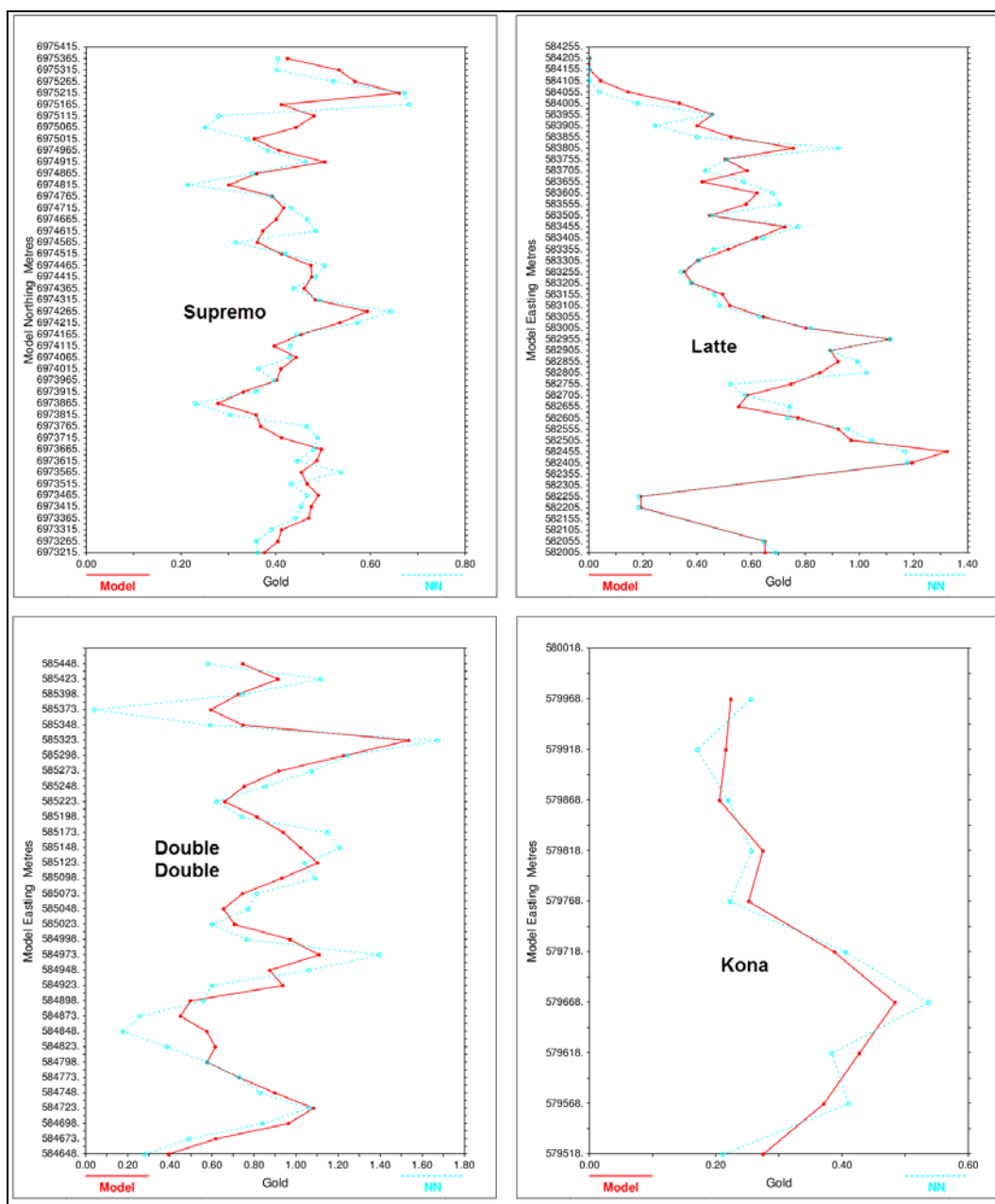


Figure 50: Examples of Swath Plots

## 13.12 Resource Classification

The mineral resources were classified in accordance with the *CIM Definition Standards for Mineral Resources and Mineral Reserves* (November 2010). The classification parameters are defined relative to the distance between sample data and are intended to encompass zones of reasonably continuous mineralization that exhibit the desired degree of confidence.

Almost all deposit areas have been tested with drill holes located at a maximum spacing of 100 metres, with many areas delineated with drilling spaced at 50 metres or less. Statistical and visual

evaluation of the distribution of gold in the deposits suggests that relatively continuous zones of mineralization can be delineated with a reasonable degree of confidence when drill holes are spaced at up to 100-metre intervals. Based on this observation, model blocks have been considered for inclusion in the Inferred category if they occur within a maximum distance of 50 metres from a drill hole.

Statistical and visual evaluations suggest that zones of mineralization, delineated with drilling on a nominal 25 metre grid pattern, exhibit a sufficient degree of confidence to be included in the Indicated resource category. One exception is in the Main part of the Latte deposit, where the mineralization tends to be much thicker and continuous from section to section. In this area, a 35 metre pattern of holes is considered sufficient to provide the confidence level for resources in the Indicated category.

During the 2013 drilling program, parts of Supremo T3 and the Main Latte zone were delineated with drill holes that increase the confidence in the resource estimate allowing for the classification of resources in the Indicated category. Drill holes at Supremo T3 between 6974100N to 6974600N are spaced on a 25 metre grid pattern to a distance of approximately 175m below surface. The Main part of the Latte deposit, between 582850E to 583325E, has been tested with holes at 50m intervals on sections spaced at 25 metre intervals resulting in a pattern of holes spaced at approximately 35 metre intervals.

Some manual “smoothing” of these criteria was conducted that includes areas where the drill hole spacing locally exceeds the desired grid spacing, but still retains continuity of mineralization or, conversely, excludes areas where the mineralization does not exhibit the required degree of confidence. This process resulted in a series of three-dimensional domains that were used to assign resource classification codes into model blocks.

The definitions of mineral resources categories are described as follows:

**Indicated Mineral Resources** – Resources are included in the Indicated category if they are located within a structural domain, form zones of relatively continuous mineralization and are delineated with three or more drill holes on a nominal 25 metre pattern. In the Main part of the Latte deposit, where the mineralized zone tends to be thicker, the minimum drill grid can be expanded to a 35 metre pattern.

**Inferred Mineral Resources** – Resources are included in the Inferred category if they are located within a structural domain and within a maximum distance of 50 metres from a drill hole and exhibit a reasonable degree of geological continuity.

## 13.13 Mineral Resources

*CIM Definition Standards for Mineral Resources and Mineral Reserves* (November 2010) define a mineral resource as:

*“[A] concentration or occurrence of diamonds, natural solid inorganic material, or natural solid fossilized minerals in or on the Earth’s crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a mineral resource are known, estimated or interpreted from specific geological evidence and knowledge.”*

The “reasonable prospects for economic extraction” requirement generally implies that quantity and grade estimates meet certain economic thresholds and that mineral resources are reported at an appropriate cut-off grade taking into account extraction scenarios and processing recovery.

The Coffee gold deposits form relatively continuous, sub-vertical zones of gold mineralization extending from the surface to a depth of several hundred metres. The deposits are amenable to open pit or underground extraction (or a combination of both). The “reasonable prospects for economic extraction” were tested using floating cone pit shells based on reasonable technical and economic assumptions (for example, site operating costs of C\$20 per tonne mined, a pit slope of 45 degrees and gold prices ranging from \$1300/oz to \$1700/oz. These initial evaluations assume 100 percent mining and metallurgical recoveries). These pit optimization evaluations are used solely for the purpose of testing the “reasonable prospects for economic extraction,” and do not represent an attempt to estimate mineral reserves. There are no mineral reserves at the Coffee project. The optimization results are used to assist with the preparation of a Mineral Resource Statement and to select and appropriate reporting assumptions.

Analyses of the floating cones show that the majority of the Oxide and Transitional gold mineralization could potentially be amenable to open pit extraction methods as these shells extend to depths of over 200m below surface in many areas. Studies show that 80% of the oxide and transitional mineral resource is located within 150m of surface and 94% of these resources are within a maximum depth of 200m below surface. Although these studies suggest that some mineralized areas may not be economically viable, this represents a relatively small proportion of the resource.

Gold mineralization delineated by drilling at Coffee is primarily located within a maximum distance of 200m below surface. Condemning portions of the deposit from the mineral resource using assumed technical and economic factors would likely affect only a minor proportion of the resource at this stage of project evaluation. In the author’s opinion, any or all of the mineralization at Coffee shows reasonable prospects for economic viability and, therefore, has been included in the estimation of mineral resources. Future detailed engineering studies are required to demonstrate the true economic viability of the resource.

The Mineral Resource Statement for the Coffee project is presented in Table 27. The Mineral Resource Statement is reported at two cut-off grades. Oxide and Transition Mineral Resources are reported at a cut-off grade of 0.5 gpt gold while Sulphide Mineral Resources are reported at a cut-off grade of 1.0 gpt gold reflecting the generally greater depths and differing metallurgical characteristics of this material. The distribution of base case resources at Supremo, Latte and Double Double is shown in Figure 51.

There are no known factors related to environmental, permitting, legal, title, taxation, socio-economic, marketing, or political issues which could materially affect the mineral resource.



Table 27: Estimate of Mineral Resources for the Coffee Project\*

Area	Oxide			Upper Transition			Lower Transition			Oxide + Transition			Sulphide		
	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal
		Au	Au		Au	Au		Au	Au		Au	Au		Au	Au
	(ktonnes)	(gpt)	(koz)	(ktonnes)	(gpt)	(koz)	(ktonnes)	(gpt)	(koz)	(ktonnes)	(gpt)	(koz)	(ktonnes)	(gpt)	(koz)
Indicated															
Supremo	2,967	2.13	203	847	1.62	44	183	1.78	11	3,997	2.01	258	0	0.00	0
Latte	5,588	1.54	277	2,773	1.22	109	1,958	1.16	73	10,319	1.38	459	42	1.52	2
Combined	8,555	1.75	480	3,619	1.32	153	2,141	1.21	83	14,316	1.56	717	42	1.52	2
Inferred															
Supremo	42,003	1.21	1,636	9,001	1.30	377	2,579	1.41	117	53,583	1.24	2,129	564	1.47	27
Latte	5,673	1.23	224	3,518	1.46	166	3,878	1.43	179	13,070	1.35	569	4,529	1.95	284
Dbl. Dbl.	1,772	2.99	170	1,974	1.81	115	206	1.49	10	3,951	2.32	295	189	2.21	13
Kona	989	1.48	47	1,473	1.20	57	0	0.00	0	2,462	1.32	104	244	1.57	12
Combined	50,437	1.28	2,078	15,967	1.39	714	6,662	1.43	306	73,066	1.32	3,098	5,525	1.89	336

\*Oxide and Transition mineral resources reported at a cut-off grade of 0.5 gpt gold. Sulphide mineral resources reported at a cut-off grade of 1.0 gpt gold. Cut-off grades based on a gold price of US\$1,300 per ounce, site operation costs of US\$20.00 per tonne mined and assumes 100 percent mining and metallurgical recovery. All figures are rounded to reflect the relative accuracy of the estimates. Mineral resources are not mineral reserves and do not have a demonstrated economic viability.

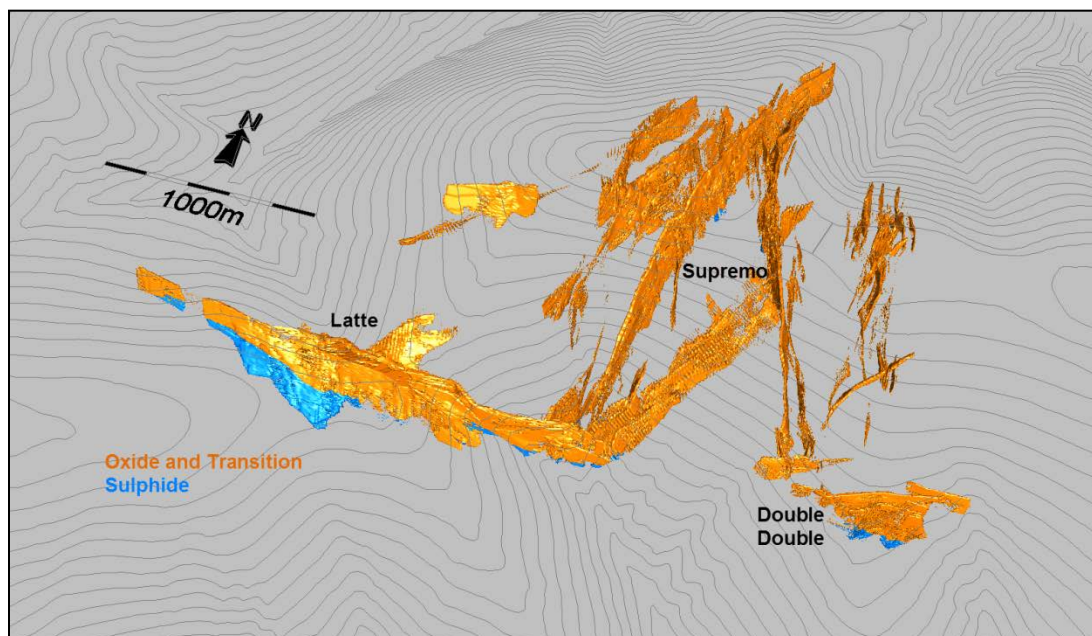


Figure 51: Isometric View of the Distribution of Base Case Resources

### 13.14 Sensitivity of Mineral Resources

The sensitivity of mineral resources is demonstrated by listing resources at a series of cut-off thresholds in Table 28, Table 29, and Table 30.

### 13.15 Comparison with the Previous Estimate of Mineral Resources

Table 31 compares the new resource estimate with the previous resource released in November 2012. In general there has been an increase in Oxide and Transitional resources, at 0.5g/t Au cut-off, of 28M tonnes at an average grade of 0.99g/t gold (936koz contained gold). Note that approximately 400koz gold is included in the Lower Transition domain.

Changes in resources are due to a combination of factors including:

- New drilling conducted in 2013 discovered additional resources in all areas. Includes new resource areas at T1 (+80koz), Latte North (+60koz) and Sumatra (+50koz). Main additions occurred at T2 (+300koz), T3 (+110koz), T7 (+110koz) and Latte Main and East (+100koz).
- Reinterpretation of Oxide and Transition domains using combination of geology and AuCN data.
- Alterations in interpolation approach that result in better continuity of mineralization in the resource model (better application of dynamic anisotropy during interpolation).
- There is little change in the amount of Sulphide resources.

**Table 28: Estimated Mineral Resource at 1.0g/t Gold Cut-off**

Area	Oxide			Upper Transition			Lower Transition			Oxide + Transition			Sulphide		
	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal
	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)
<b>Indicated</b>															
Supremo	1,734	3.15	175	467	2.37	35	110	2.48	9	2,311	2.96	220	0	0.00	0
Latte	3,573	1.99	229	1,540	1.62	80	839	1.74	47	5,952	1.86	356	42	1.52	2
<b>Combined</b>	<b>5,307</b>	<b>2.37</b>	<b>405</b>	<b>2,007</b>	<b>1.79</b>	<b>116</b>	<b>949</b>	<b>1.82</b>	<b>56</b>	<b>8,262</b>	<b>2.17</b>	<b>576</b>	<b>42</b>	<b>1.52</b>	<b>2</b>
<b>Inferred</b>															
Supremo	18,338	1.87	1,100	4,231	1.97	268	1,246	2.16	87	23,814	1.90	1,455	564	1.47	27
Latte	2,527	1.87	152	1,961	2.07	130	2,204	1.98	140	6,693	1.96	423	4,529	1.95	284
Dbl. Dbl.	1,228	4.00	158	1,135	2.62	96	119	2.05	8	2,482	3.28	262	189	2.21	13
Kona	565	2.06	37	687	1.76	39	0	0.00	0	1,252	1.90	76	244	1.57	12
<b>Combined</b>	<b>22,658</b>	<b>1.99</b>	<b>1,448</b>	<b>8,014</b>	<b>2.07</b>	<b>533</b>	<b>3,569</b>	<b>2.04</b>	<b>235</b>	<b>34,241</b>	<b>2.01</b>	<b>2,216</b>	<b>5,525</b>	<b>1.89</b>	<b>336</b>

**Table 29: Estimated Mineral Resource at 1.5g/t Gold Cut-off**

Area	Oxide			Upper Transition			Lower Transition			Oxide + Transition			Sulphide		
	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal
	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)
<b>Indicated</b>															
Supremo	1,213	3.98	155	278	3.14	28	71	3.16	7	1,562	3.79	190	0	0.00	0
Latte	2,069	2.55	170	660	2.14	45	374	2.40	29	3,103	2.44	244	16	2.02	1
<b>Combined</b>	<b>3,281</b>	<b>3.08</b>	<b>325</b>	<b>939</b>	<b>2.44</b>	<b>74</b>	<b>445</b>	<b>2.52</b>	<b>36</b>	<b>4,665</b>	<b>2.89</b>	<b>434</b>	<b>16</b>	<b>2.02</b>	<b>1</b>
<b>Inferred</b>															
Supremo	9,533	2.47	756	2,217	2.65	189	702	2.90	65	12,452	2.52	1,011	173	2.05	11
Latte	1,371	2.42	107	1,259	2.54	103	1,315	2.48	105	3,945	2.48	314	2,301	2.66	197
Dbl. Dbl.	900	5.01	145	750	3.33	80	80	2.46	6	1,731	4.17	232	125	2.70	11
Kona	344	2.61	29	375	2.22	27	0	0.00	0	720	2.41	56	88	2.23	6
<b>Combined</b>	<b>12,149</b>	<b>2.66</b>	<b>1,037</b>	<b>4,602</b>	<b>2.70</b>	<b>399</b>	<b>2,097</b>	<b>2.62</b>	<b>177</b>	<b>18,848</b>	<b>2.66</b>	<b>1,612</b>	<b>2,686</b>	<b>2.61</b>	<b>225</b>

**Table 30: Estimated Mineral Resource at 2.0g/t Gold Cut-off**

Area	Oxide			Upper Transition			Lower Transition			Oxide + Transition			Sulphide		
	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal
	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)
<b>Indicated</b>															
Supremo	919	4.69	139	186	3.85	23	59	3.45	7	1,164	4.50	168	0	0.00	0
Latte	1,178	3.17	120	260	2.80	23	191	3.05	19	1,629	3.10	162	8	2.24	1
<b>Combined</b>	<b>2,097</b>	<b>3.84</b>	<b>259</b>	<b>446</b>	<b>3.24</b>	<b>46</b>	<b>250</b>	<b>3.14</b>	<b>25</b>	<b>2,793</b>	<b>3.68</b>	<b>331</b>	<b>8</b>	<b>2.24</b>	<b>1</b>
<b>Inferred</b>															
Supremo	5,277	3.07	521	1,322	3.28	139	473	3.47	53	7,072	3.14	713	67	2.56	6
Latte	796	2.92	75	752	3.07	74	795	2.98	76	2,342	2.99	225	1,238	3.47	138
Dbl. Dbl.	666	6.17	132	518	4.05	67	39	3.19	4	1,223	5.18	204	63	3.63	7
Kona	232	3.03	23	188	2.70	16	0	0.00	0	420	2.88	39	51	2.60	4
<b>Combined</b>	<b>6,971</b>	<b>3.35</b>	<b>750</b>	<b>2,779</b>	<b>3.33</b>	<b>297</b>	<b>1,307</b>	<b>3.16</b>	<b>133</b>	<b>11,058</b>	<b>3.32</b>	<b>1,181</b>	<b>1,420</b>	<b>3.40</b>	<b>155</b>

**Table 31 Comparison to Previous Resource Estimate**

**Jan 2014 Mineral Resource**

Area	Oxide			Transition			Oxide + Transition			Sulphide		
	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal
	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)
<b>Indicated</b>												
Supremo	2,967	2.13	203	1,030	1.65	55	3,997	2.01	258	0	0.00	0
Latte	5,588	1.54	277	4,731	1.20	182	10,319	1.38	459	42	1.52	2
<b>Combined</b>	<b>8,555</b>	<b>1.75</b>	<b>480</b>	<b>5,761</b>	<b>1.28</b>	<b>237</b>	<b>14,316</b>	<b>1.56</b>	<b>717</b>	<b>42</b>	<b>1.52</b>	<b>2</b>
<b>Inferred</b>												
Supremo	42,003	1.21	1,636	11,580	1.33	494	53,583	1.24	2,129	564	1.47	27
Latte	5,673	1.23	224	7,396	1.45	345	13,070	1.35	569	4,529	1.95	284
Dbl. Dbl.	1,772	2.99	170	2,179	1.78	125	3,951	2.32	295	189	2.21	13
Kona	989	1.48	47	1,473	1.20	57	2,462	1.32	104	244	1.57	12
<b>Combined</b>	<b>50,437</b>	<b>1.28</b>	<b>2,078</b>	<b>22,629</b>	<b>1.40</b>	<b>1,020</b>	<b>73,066</b>	<b>1.32</b>	<b>3,098</b>	<b>5,525</b>	<b>1.89</b>	<b>336</b>

\* Oxide and Transition mineral resources reported at a cut-off grade of 0.5 gpt gold. Sulphide mineral resources reported at a cut-off grade of 1.0 gpt gold.

**Nov 2012 Inferred Mineral Resource**

Area	Oxide			Transition			Oxide + Transition			Sulphide		
	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal	Quantity	Grade	Metal
	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)	(ktonnes)	Au (gpt)	Au (koz)
Supremo	19,860	1.61	1,027	16,545	1.32	704	36,404	1.48	1,731	828	2.18	58
Latte	6,054	1.48	288	11,328	1.48	537	17,382	1.48	825	3,771	2.09	254
Dbl. Dbl.	1,175	3.16	120	1,966	1.9	120	3,141	2.37	240	188	2.11	13
Kona	989	1.48	47	1,473	1.2	57	2,462	1.32	104	244	1.57	12
<b>Combined</b>	<b>28,078</b>	<b>1.64</b>	<b>1,481</b>	<b>31,313</b>	<b>1.41</b>	<b>1,418</b>	<b>59,390</b>	<b>1.52</b>	<b>2,900</b>	<b>5,030</b>	<b>2.08</b>	<b>337</b>



## **14 Adjacent Properties**

There are no adjacent properties considered relevant to this technical report.

## **15 Other Relevant Data and Information**

The authors of this report are not aware of any other information that is relevant to this technical report.

## 16 Interpretations and Conclusions

The Qualified Persons reviewed and audited the exploration data available for the Coffee project. The exploration work carried out by Kaminak was conducted using procedures consistent with recognized industry best practices and the Qualified Persons are of the opinion that the exploration data are reliable to support the estimation of mineral resources.

Exploration work to date on the Coffee project has identified widespread gold mineralization associated with fractured and hydrothermally altered rocks. Structural corridors are characterized by deep surface weathering profiles such that the majority of the gold mineralization investigated by Kaminak to date is completely to partially oxidized. The gold mineralization occurs in steeply dipping structural zones characterized by fragmental rock, dolomite, silica and sericite alteration, minor veining and is associated with mafic and felsic dykes. The work completed in 2013 improved the understanding of the nature of the gold mineralization and its relationship with lithology, alteration, and structure.

Drilling of the Supremo Zone targeted significant high-grade gold mineralization in the north-northeast trending, steeply east-dipping subparallel T1, T2, T3, T4, T5, and T7 structures, associated with breccias and dykes. This gold corridor has been tested over a strike length of up to 2,100 metres on the T3 structure which remains open to the north along strike. Individual mineralized structures have widths of 5 to 30 metres. Structural corridors comprised of multiple stacked structures can be up to 400m width (eg. T2-T3).

The Latte zone follows an east-west trend of gold-in-soil anomalies that has been verified by drilling to consist of multiple gold mineralized structures across a structural corridor width of 10 to 80m. The moderately to steeply south-dipping east-west mineralized corridor, which is characterized by a variety of fracture zones and breccias cross-cutting the foliation, strikes obliquely across the host rock packages for at least 2,000 metres, and remains open along strike and at depth.

The Double Double Zone also follows east-west trending gold-in-soil anomalies. The 45 boreholes completed so far have identified the gold mineralized structure as dipping steeply to the north with a strike length of 600 metres and down to a depth of 400 metres below surface.

Comprehensive cyanide gold leach bottle roll and column tests completed in 2013 confirmed the previous 2011-2012 results indicating that the oxidized material is amenable to relatively low-cost heap leach extraction methods. Column leach gold recoveries of 90% to 92% on 1" crushed material from drill core composites of representative Oxide material from each of Latte and Supremo were achieved within 40 days. All of the samples leached very rapidly with 81.6% and 81.0% gold recovery after ten days leaching of the 1 inch Oxide crushed material from Latte and Supremo respectively. Column leach test work was conducted under simulated cold climate conditions by Kappes, Cassidy and Associates. Agglomeration was not required and low reagent consumption was reported. Bottle roll gold recoveries were not substantially increased compared to the column leach tests. Four preliminary rough flotation tests completed on a Latte Sulphide sample returned gold recoveries of 58% to 72% gold in concentrate. Additional work to optimize reagents, grind size and flotation time will depend on the future delineation and quantification of Sulphide resources.

The drilling results generated by Kaminak from 2010 to 2013 provides a sound interpretation of a geologic model that forms the foundation of mineral resource estimates for four areas of gold mineralization: Kona, Double Double, Latte and Supremo. Using a geostatistical block modelling approach, the Qualified Person estimates, at a base case cut-off of 0.5 grams per tonne gold ("g/t Au") for Oxide and Transitional material and a 1g/t Au cut-off for Sulphide material, the updated

mineral resource consisting of an Indicated Resource of 14 million tonnes grading at 1.56g/t Au for 719,000 ounces, including 480,000 ounces gold classified as Oxide, and an Inferred Resource of 79 million tonnes grading at 1.36g/t Au for 3,434,000 ounces of gold, which includes 2,078,000 ounces gold classified as Oxide.

## 17 Recommendations

In the opinion of the Qualified Persons the results of the exploration work completed by Kaminak on the Coffee gold project from 2010–2013, and the updated Mineral Resource Statement presented herein, are of sufficient merit to recommend additional expenditures designed to continue delineation of the current resource and to explore for additional extensions of the mineral resource. The next phase of proposed work also includes preliminary mining engineering, environmental, and other studies that will contribute to a better understanding of the potential viability of the mining project and, ultimately, the preparation of a Preliminary Economic Assessment.

### 17.1 Exploration Program

The proposed exploration work program recommended by the Qualified Persons includes additional core and reverse circulation drilling to investigate the gold mineralization intersected in 2010–2013 and test its lateral and depth continuity. The recommended exploration program includes approximately 70,000 metres of drilling consisting of:

- Delineation drilling of the Supremo, Latte, Double Double, and Kona zones along regularly spaced sections to improve definition of the boundaries of the gold mineralization, increase understanding of geological and structural controls, and improve classification of additional mineral resources from Inferred to the Indicated or Measured category;
- Additional step-out drilling at the Supremo, Latte, Double Double, and Kona zones to investigate and define geometry and distribution of the gold mineralization and test its lateral and depth continuity with the objective of extending current resources and supporting initial mineral resource evaluation on new zones; and
- Exploration drilling of other gold-in-soil anomalies, especially large continuous high tenor anomalies located at Cappuccino, Macchiato, Espresso, Americano, Arabica, Mocha, Java and Sugar.

The Qualified Persons recommend that additional mineralogical, petrographic, and geochemical studies be completed to study the gold mineralization with respect to the tectonic, metamorphic and magmatic history of the Coffee gold project area.

The total cost for the proposed exploration program is estimated at C\$20,000,000 (Table 32).

**Table 32: Recommended Exploration Program for the Coffee Project 2014**

<b>Program</b>	<b>Amount</b>	<b>Units</b>	<b>Unit cost C\$</b>	<b>Subtotal C\$M</b>
Planning and Supervision				2.20
Camp Operation				0.25
Equipment Rental (tent, truck, boats, etc.)				0.10
Fix Wing Charter Air Service				1.00
Helicopter Charter				1.00
Barging	15	trips		0.75
Mobilization / Demobilization				0.10
Geophysical Surveys				0.25
Core Drilling (all inclusive)	35,000	metres	\$250	8.75
Reverse Circulation Drilling (all inclusive)	35,000	metres	\$90	3.15
Soil Sampling (all inclusive)	10,000	samples	\$50	0.50
Mineral Resource Estimation				0.10
Preparation of Technical Report				0.05
<b>Subtotal</b>				<b>18.20</b>
Contingency (10%)				1.80
<b>Total</b>				<b>C\$20.00</b>

## 17.2 Preliminary Economic Assessment

The results of engineering, metallurgical, environmental and other studies undertaken during 2013 are currently being incorporated into a Preliminary Economic Assessment with the objective to evaluate, at a conceptual level, the viability of a mining project targeting the Indicated and Inferred mineral resources at Supremo, Latte, Double Double and Kona. The study will examine several mining and processing scenarios to determine the most attractive option for the potential development. The PEA, which is scheduled for completion during the first half of 2014, includes the following components:

- mining optimization studies at a range of gold prices
- additional metallurgical test work to test amenability of column leach at coarse crush size
- mine scheduling
- infrastructure design
- conceptual flow sheet design
- economic modelling
- on-going environmental baseline data collection, additional flora and fauna habitat studies, and geochemical characterization studies.

The total cost for the preparation of a Preliminary Economic Assessment of the Coffee gold project is estimated at C\$2,000,000 (Table 33).

**Table 33: Recommended Preliminary Economic Assessment for the Coffee Project 2014**

Work Program	Amount	Units	Unit cost C\$	Subtotal C\$M
Planning, Consultancy and Supervision				0.05
Camp Operation				0.01
Fix Wing Charter Air Service				0.01
Helicopter Charter				0.01
Mobilization / Demobilization				0.01
Environmental Baseline Studies				1.30
Metallurgical Testwork				0.06
Optimization, Design and Economic Analysis				0.30
Preparation of Technical Report				0.05
	<b>Subtotal</b>			<b>1.80</b>
Contingency (10%)				0.20
<b>Total</b>				<b>C\$2.00</b>



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## CERTIFICATE OF QUALIFIED PERSON

**Robert Sim, P.Geo, SIM Geological Inc.**

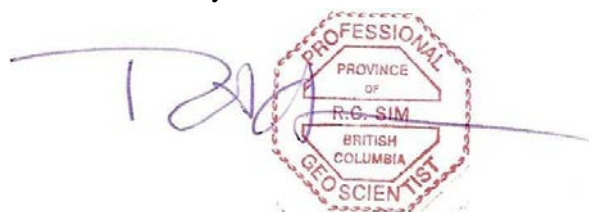
I, Robert Sim, P.Geo, do hereby certify that:

1. I am an independent consultant of:

SIM Geological Inc.  
6810 Cedarbrook Place  
Delta, British Columbia, Canada V4E 3C5

2. I graduated from Lakehead University with an Honours Bachelor of Science (Geology) in 1984.
3. I am a member, in good standing, of the Association of Professional Engineers and Geoscientists of British Columbia, License Number 24076.
4. I have practiced my profession continuously for 30 years and have been involved in mineral exploration, mine site geology and operations, mineral resource and reserve estimations and feasibility studies on numerous underground and open pit base metal and gold deposits in Canada, the United States, Central and South America, Europe, Asia, Africa and Australia.
5. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
6. I am a co-author of the technical report titled *Mineral Resource Evaluation, Coffee Gold Project, Yukon, Canada*, dated March 12, 2014, with an effective date of January 28, 2014 (the “Technical Report”), and accept professional responsibility for sections 1 through 18, excluding section 12.2.1.
7. I visited the Coffee property on September 12-14, 2011; on August 28-29, 2012; and on May 15-16, 2013.
8. I have had prior involvement with the property that is the subject of the Technical Report. I was a co-author of a previous Technical Report dated January 10, 2013.
9. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
10. I am independent of Kaminak Gold Corp. applying all of the tests in Section 1.5 of NI 43-101.
11. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 12<sup>th</sup> day of March, 2014.



Robert Sim, P.Geo



## CERTIFICATE OF QUALIFIED PERSON

**Dan Kappes, P.E., Kappes, Cassiday & Associates**

I, Dan Kappes, P.E., do hereby certify that:

1. I am an independent consultant of:

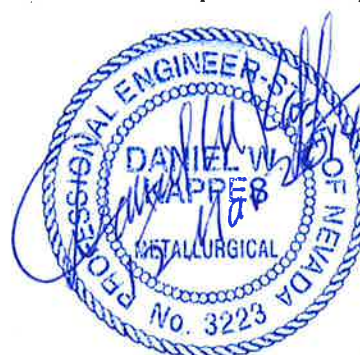
Kappes, Cassiday & Associates  
7950 Security Circle  
Reno, Nevada, USA 89506

2. I graduated from Colorado School of Mines, with the degree Engineer of Mines in 1966, and from Mackay School of Mines with the degree Master of Science in Mining Engineering in 1972.
3. I am a Registered Professional Mining Engineer and Registered Professional Metallurgical Engineer, License Number 3223, in the state of Nevada.
4. I have practiced my profession continuously since 1966 and have been involved on a routine basis with the evaluation, design, construction management and startup of a wide variety of mineral industry projects.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
6. I am responsible for the preparation of section 12.2.1 of the technical report titled *Mineral Resource Evaluation, Coffee Gold Project, Yukon, Canada*, dated March 12, 2014, with an effective date of January 28, 2014 (the "Technical Report").
7. I have not visited the Coffee property.
8. I have not had any prior involvement with the property that is the subject of the Technical Report.
9. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
10. I am independent of Kaminak Gold Corp. applying all of the tests in Section 1.5 of NI 43-101.
11. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 12<sup>th</sup> day of March, 2014.

"original signed and sealed"

  
Dan Kappes, P.E.



*license expires 30 June 2015*