## NI 43-101 Technical Report on the

## Brenda Gold-Copper Project



White Pass Zone, Brenda Gold-Copper Project
Centered at 6,347,784m N and 628,578m E (NAD 83, Zone 9)
Toodoggone-Kemess District, North-Central British Columbia, Canada
Prepared For: Canasil Resources Inc.
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Effective Date: September 12, 2017

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## DATE \& SIGNATURE PAGE

Herewith, the report entitled 'Technical Report on the Brenda Gold-Copper Project' effective date 12 September 2017.
"Originals Signed and Sealed"

Robert A. (Bob) Lane, MSc, PGeo
Dated 12 September 2017
Plateau Minerals Corp.
President

## CERTIFICATE \& DATE - Robert A. (Bob) Lane

I, Robert A. (Bob) Lane, MSc, PGeo, do hereby certify that:

1. I am the president of Plateau Minerals Corp., a mineral exploration consulting company with an office located at 3000-18th Street, Vernon, British Columbia.
2. I am a graduate of the University of British Columbia in 1990 with a M.Sc. in Geology.
3. I am a Professional Geoscientist (PGeo) registered with the Association of Professional Engineers and Geoscientists of British Columbia (Registration \#18993) and have been a member in good standing since 1992.
4. I have practiced my profession continuously since 1990 and have more than 25 years of experience investigating a number of mineral deposit types, including copper porphyry and related deposits, primarily in British Columbia.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 and certify that by reason of education, experience, independence and affiliation with a professional organization, I meet the requirements of an Independent Qualified Person as defined in National Instrument 43-101.
6. I visited the Brenda Project on August 27-28, 2017.
7. I am responsible for all sections of the Technical Report entitled "NI 43-101 TECHNICAL REPORT ON THE BRENDA GOLD-COPPER PROJECT" with an Effective Date of September 12, 2017.
8. I am independent of the issuer applying all of the tests in Section 1.5 of National Instrument $43-101$. I hold no direct or indirect interest in the Brenda Project, nor any direct or indirect interest in Canasil Resources Inc. I have had prior involvement in the Brenda Project by managing the 2013 drill program.
9. I am not aware of any material fact or material change with respect to the subject matter of the report that is not disclosed in the report which, by its omission, would make the report misleading.
10. To the best of my knowledge, information and belief at the effective date, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
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.
12. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in public company files on their websites accessible by the public.

Dated this 12 September 2017:
"Signed and Sealed"

Signature of Qualified Person
Robert A. (Bob) Lane, MSc, PGeo

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## 1 SUMMARY

### 1.1 INTRODUCTION

Canasil Resources Inc. ("Canasil" or "the company") retained the writer to prepare a National Instrument 43-101 (NI 43-101) Technical Report for its Brenda Gold-Copper Project ("Project"). The Project includes a significant porphyry gold-copper prospect located between two former producing mines in the Toodoggone-Kemess district of north-central British Columbia (BC), Canada. The writer of the report is Robert A. (Bob) Lane, MSc, PGeo, of Plateau Minerals Corp. who is a "Qualified Person" (QP) as defined by NI 43-101. Canasil is a Canadian mineral acquisition and exploration company listed on the TSX-Venture Exchange (TSX VENTURE: CLZ). The company is focused on the development of gold and copper deposits in northern BC and silver deposits in Mexico. Canasil maintains an office in Vancouver, BC. This Technical Report provides summaries of project history, geology, mineralization, deposit characteristics, exploration targets, and makes recommendations for future work.

### 1.2 Project Location, Description, Access and Ownership

The Brenda Project is located approximately 450 km northwest of Prince George and 270 km north of Smithers in north-central BC. The Project is situated in mountainous terrain east of the Spatsizi Plateau, west of the Swannell Ranges and north-northwest of Thutade Lake.

The Project is located centrally within the northwest-trending Toodoggone-Kemess district. The district forms part of the Stikine terrane, which consists predominantly of Late Paleozoic to Mesozoic island-arc volcanic and related sedimentary rocks that are invaded by important Early Jurassic rocks of the Black Lake suite. Mineralization in the district is characterized by epithermal gold-silver veins and porphyry gold-copper systems. The Toodoggone-Kemess district includes three former precious metal mines (Lawyers, Baker and Shasta) and one past-producing goldcopper mine (Kemess South). The Brenda Project includes both porphyry gold-copper prospects and epithermal gold-silver showings. Four mineralized zones, including White Pass, Creek, EB and Takla, have been the subject of detailed exploration including diamond drilling.

The Project has excellent road access from Prince George by way of well-maintained Forest Service Roads, the Omineca Resource Access Road (ORAR) and mining access roads that provide direct road access onto the Project. The local access roads are open from late spring through to early fall. The Project is 25 km northwest of the former Kemess South mine.

The Brenda Project consists of 22 contiguous mineral claims totaling 4,450.0 hectares of subsurface mineral rights in the Omineca Mining Division. All of the claims are $100 \%$-owned by Canasil Resources Inc. and are in good-standing until at least May 30, 2024. None of the claims are subject to any underlying interests or royalties.

### 1.3 HISTORY

The first claims in the Project area were staked in 1950 by Emil Bronlund who discovered auriferous quartz veins in the Jock Creek and Red Creek drainages. Thirty years later the ground was re-staked by Canmine Development Company Inc. (Canmine) who primarily explored for gold and silver-bearing epithermal quartz vein systems. In 1985, Canmine optioned the claims to Canasil Resources Inc. (Canasil) who continued to evaluate the claims for its gold-silver potential. A number of quartz vein prospects were located, including the Takla and EB zones, with samples returning values of up to $42.16 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $1,628.3 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$. However, gold and silver grades were generally more modest and the zones were limited in their extent. The first drilling on the Project was completed in 1988 by Cyprus Gold Canada Inc. (Cyprus) under a joint-venture agreement with Canasil, but the 12-hole program encountered only low concentrations of gold and silver over narrow widths. From 1989 through 1991, Canasil completed grid-based soil sampling surveys, modest trenching programs, and geophysical and geochemical surveys. The work outlined a broad gold-silver-copper geochemical anomaly with coincident high chargeability anomalies called the White Pass zone. These characteristics were indicative of possible porphyry style mineralization and changed the exploration strategy for the Project.

In 1992, Canasil completed a modest drilling campaign on the Brenda Project that included the first four holes in White Pass zone. In 1993, Romulus Resources Ltd. (Romulus) completed a multi-parameter exploration program on the Project, including soil geochemical sampling, Induced Polarization (IP) and magnetic geophysical surveys and diamond drilling. Romulus drilled four holes ( 957 m ) in the White Pass area that substantiated the gold-rich character of the porphyry mineralization on the Project. Results included $1.10 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 0.13 \% \mathrm{Cu}$ and 4.8 ppm Ag over 47.86 m in hole $93-1$ and $0.48 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 0.144 \% \mathrm{Cu}$ and $1.0 \mathrm{~g} / \mathrm{t}$ Ag over 108.8 m in hole 93-3. These results confirmed the presence of a significant gold-copper porphyry system that warranted further exploration.

From 1995-1997, Canasil drilled another 16 holes ( $1,919 \mathrm{~m}$ ) on the Brenda Project, 13 of which tested the White Pass zone. Results were mixed, and none of the holes tested the zone to significant depths. Results included: $0.605 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $0.123 \%$ Cu over 60.35 m in hole BR-96-03, and $0.832 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $0.139 \% \mathrm{Cu}$ over 62.50 m in hole BR-96-07. Drillhole 97-02 was highly anomalous in gold to a depth of 105.76 m and included a 39.93 m interval that averaged $1.12 \mathrm{~g} / \mathrm{t}$ $\mathrm{Au}, 0.18 \% \mathrm{Cu}, 3.2 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and $>800 \mathrm{ppm} \mathrm{Pb}$ and $>800 \mathrm{ppm} \mathrm{Zn}$. The high concentrations of zinc in the central White Pass zone were considered surprising and are more typical of the periphery of a porphyry system.

Northgate Exploration Ltd. (Northgate) undertook exploration programs in 2002, 2003 and 2004 under an Option and Joint Venture agreement that it signed with Canasil in July, 2002. This work included initial airborne high resolution magnetic, radiometric and satellite imaging surveys followed by three consecutive diamond drilling campaigns totaling 4,580m in 14 holes.

Northgate showed that significant mineralization occurs over a strike length of at least 520 m and to depth of at least 450 m , and returned significantly longer intersections of gold and copper mineralization (up to 243 m ) than those from earlier programs (see table below). Gold mineralization was shown to be reasonably evenly distributed in the $0.5 \mathrm{~g} / \mathrm{t}$ Au range, while copper grades were typically in the 0.05-0.15\% Cu range.

In 2007, Canasil completed a 3-dimensional Induced Polarization (3D-IP) geophysical survey and five-hole $(1,708 \mathrm{~m})$ HQ diamond drilling program. The results were thought to indicate potential for a deep porphyry gold-copper system at the White Pass zone. Drillholes BR-07-04 and BR-07-05 intersected broad zones of gold-copper mineralization beneath previous drillholes that appeared to be increasing with depth. These results, in conjunction with the strong anomalies observed in the geophysical survey, were encouraging.

The most recent exploration program on the Project took place in 2013. It consisted of one deep NQ-diameter diamond drillhole designed to test the central White Pass area 500 m deeper than previous drilling. Drillhole BR-13-01 was collared within $2 m$ of the collar location of 2007 drillhole BR-07-04 and drilled to a depth of 962.6 m . The top 500 m of drillhole BR-13-01 was not analyzed because it was a twin of drillhole BR-07-04; the highest grade intersection in drillhole BR-13-01 returned $0.376 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $0.073 \%$ Cu over 68 m from 504-572m. This intersection was, however, significantly lower in average grade than the equivalent section of drillhole BR-07-04 between 504-562m. The deeper part of drillhole BR-13-01 was dominated by post-mineral monzonite dykes that were effectively barren. The 2013 drillhole was interpreted to have passed into a non-mineralized portion of the system and missed flanking mineralization. Deeppenetrating, three-dimensional geophysical surveys and additional deep diamond drilling were recommended.

### 1.4 Geology, Alteration and Mineralization

### 1.4.1 Geology

The Brenda Project is situated in a Mesozoic volcanic arc assemblage within the Stikine terrane along the eastern margin of the Intermontane belt. The Project lies within the ToodoggoneKemess district, a northwesterly trending belt of Paleozoic to Tertiary sedimentary, volcanic and intrusive rocks. The district is dominated by northwest and northeast trending block faults.

The Brenda Project is underlain by basaltic volcanic rocks of the Upper Triassic Takla Group, andesitic, latitic and dacitic volcanic stratigraphy of the Lower to Middle Jurassic Toodoggone Formation (Hazelton Group) and monzonitic plutons, dykes and sills of the Black Lake suite that are co-magmatic with the Toodoggone Formation. Numerous precious metal-bearing epithermal type vein deposits and deeper-seated porphyry gold-copper deposits are associated with this magmatic event.

The northeastern two thirds of the Project are underlain by mainly porphyritic volcanic flows of the Metsantan member (lower Toodoggone Formation). A large zone of hydrothermally altered Metsantan volcanic rocks, associated with porphyritic dyke swarms, characterize the main area of exploration interest in the northern part of the Project. In the southwestern part of the Project volcanic rocks of the Takla Group are generally in fault contact with the Metsantan units or are intruded by a granitic pluton. The most westerly part of the Project is underlain by mainly ash flows of the Duncan member, the basal unit of the Toodoggone Formation.

Three types of dykes are recognized on the Project. They are generally from a few metres to tens of metres wide. From oldest to youngest they are i) quartz monzonite that appear to be syn- to late mineralization intrusions, ii) hornblende feldspar porphyry (or monzonite/quartz monzonite), the most common type of dyke on the Project; in the White Pass area the dykes trend dominantly northwest- to north-northwest, and iii) syenite/monzonite.

### 1.4.2 Alteration

In the northern part of the Project a widespread propylitic alteration zone consisting of illite, chlorite, epidote, carbonate and gypsum with disseminated pyrite, is surrounded and locally overprinted by a distal zone with fracture fillings containing pink zeolite (laumontite) and carbonate minerals.

In the central White Pass area of the Project, a north-trending zoned argillic-phyllic-potassic alteration sequence, associated with gold and copper mineralization, occurs over a distance of about 2.5 km . It is dominated by argillic alteration with irregular flat lying areas of quartz alunite along dyke margins. Drilling beneath the north and south extremities of the argillic-quartz alunite alteration has intersected phyllic alteration suggesting that the argillic alteration is supergene. Drilling under the central portion of the argillic alteration at the top of White Pass has intersected a vertical central zone of potassic alteration averaging 300 m thick. It is enveloped by phyllic alteration that averages 150 m thick. This alteration is cut by barren postmineral dykes.

### 1.4.3 Mineralization

Low sulphidation epithermal gold-silver mineralization and gold-copper porphyry mineralization are recognized on the Brenda Project. The two styles of mineralization are distinct, but are likely genetically-related. The Takla and EB zones are located in the headwaters of Red Creek, the Creek zone is located in the valley bottom immediately south of Jock Creek, and the White Pass zone is situated on a high-standing ridge about 1.5 km south of Jock Creek. The White Pass zone has been the principal subject of exploration on the Project since 1993.

The White Pass zone is marked by a conspicuous colour anomaly and is characterized by a central zone of strongly potassic-altered latite with narrow quartz-magnetite stockworks. Gold-
copper mineralization has been defined over a width of $300-400 \mathrm{~m}$. The potassic-altered zone is capped by a well-developed zone of argillic alteration and is surrounded by an intense phyllic (quartz-sericite-pyrite) alteration that averages 100-150m in width and carries weak gold-copper mineralization. The potassic-altered gold-copper zone has been traced by drilling over a strike length of 500 m and to a depth of 560 m . The deep mineralization is open along strike and to depth. A 3D-IP geophysical survey completed over the area suggests that the mineralization extends for at least 1000 m along strike. Sulphide mineralization also occurs beneath and surrounding the large quartz-alunite cap located 1000 m to the east.

The White Pass zone is cut by a swarm of eight or more, $8-45 \mathrm{~m}$ thick post-mineral porphyritic monzonite dykes with an average orientation of $132 / 77^{\circ} \mathrm{SW}$. Zones of gold and copper mineralization are dissected and diluted by the dykes resulting in alternating panels of wellmineralized volcanic rock separated by panels of post-mineral, unmineralized dyke rock. Select drillhole intersections from the White Pass zone are shown below.

| Drillhole ID | From (m) | To (m) | Interval (m) | Au (g/t) | Cu (\%) | Ag (g/t) |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: |
| BR-92-04 | 16.40 | 43.00 | 26.60 | 0.915 | 0.028 | 3.0 |
| BR-93-01 | 9.13 | 57.00 | 47.86 | 1.100 | 0.130 | 4.8 |
| BR-93-03 | 12.20 | 121.00 | 108.80 | 0.480 | 0.144 | 1.0 |
| BR-95-03 | 20.40 | 61.90 | 41.50 | 0.770 | 0.110 | 3.3 |
| BR-96-03 | 15.54 | 75.89 | 60.35 | 0.605 | 0.123 | - |
| BR-96-07 | 7.30 | 69.80 | 62.50 | 0.832 | 0.139 | - |
| BR-97-02 | 17.35 | 122.83 | 105.48 | 0.708 | 0.083 | 2.2 |
| BR-03-06 | 53.30 | 133.20 | 79.90 | 0.375 | 0.111 | - |
| BR-03-07 | 95.50 | 262.10 | 166.60 | 0.565 | 0.079 | - |
| BR-04-10 | 91.40 | 251.00 | 159.60 | 0.411 | 0.038 | - |
| BR-04-14 | 343.10 | 448.00 | 104.90 | 0.399 | 0.031 | - |
| BR-07-04 | 90.12 | 260.00 | 169.88 | 0.466 | 0.088 | - |
| and | 312.00 | 378.00 | 66.00 | 0.310 | 0.038 | - |
| and | 420.08 | 460.00 | 39.92 | 0.418 | 0.080 | - |
| and | 504.00 | 561.96 | 57.96 | 0.707 | 0.119 | - |
| BR-13-01* | 504.00 | 572.00 | 68.00 | 0.376 | 0.074 | 3.4 |

*=the top 500 m of the drillhole was not analyzed because it was drilled as a twin of BR-07-04

### 1.5 Exploration, Drilling and Deposit Modelling

Canasil is not currently conducting exploration on the Brenda Project.
Previous exploration on the Project consisted of prospecting, bedrock mapping, soil and rock geochemical sampling, aerial and ground-based geophysical surveys, trenching and diamond drilling. This work identified epithermal gold-silver prospects and porphyry gold-copper prospects. The geophysical surveys that have been completed over parts of the Project do not
appear to penetrate as deeply as is required by today's exploration targeting of deeply buried porphyry systems.

A total of 65 surface exploration diamond drillholes with an aggregate length of 12,067m have been completed on the Project. The holes were drilled from 1988 to 2013 by various operators and tested five different targets on the Project. The White Pass zone has been tested by 41 of these drillholes $(10,034 \mathrm{~m})$ over the course of nine drilling campaigns that took place from 19922013. This data was used to create a geological model for the zone consisting of a Mineralized Zone (MZ) that is characterized by drillhole intersections of $>0.1 \mathrm{~g} / \mathrm{t}$ Au and several smaller Higher Grade Zones (HGZ) that are characterized by drillhole intersections of $>0.4 \mathrm{~g} / \mathrm{t}$ Au. Based on drillhole intervals and weighted averages, the average grades of the modelled MZ are 0.410 $\mathrm{g} / \mathrm{t} \mathrm{Au}, 0.066 \% \mathrm{Cu}$ and $2.74 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$, and the average grades of the modelled HGZ are $0.659 \mathrm{~g} / \mathrm{t}$ $\mathrm{Au}, 0.092 \% \mathrm{Cu}$ and $3.32 \mathrm{~g} / \mathrm{t}$ Ag. Three-dimensional shapes for the MZ and HGZ were generated in similar fashion to that of grade shell interpolation. The shape for the MZ has approximate dimensions of 1000 m by 400 m and is from $100-600 \mathrm{~m}$ thick. The HGZ has estimated dimensions of 200 m by 300 m and is 150 m thick.

The geological model coupled with 2007 IP data was used to generate a model that may be useful in guiding future exploration on the Project.

### 1.6 Sample Preparation, Security and Analysis

The writer concludes that sample collection, sample preparation, security and analytical procedures utilized during historical programs were completed by professional geologists working for well-established junior mining exploration companies and therefore likely met or exceeded the best management practices and standards for the era in which the work was performed.

Use of a comprehensive QAQC program is recommended for all future exploration programs on the Brenda Project to insure that all analytical data can be confirmed to be reliable.

### 1.7 Data Verification

The data verification process included review of drill logs, analytical database, analytical certificates, project core handling, logging, sampling, QAQC and analytical protocols, geophysical reports and a site visit. The review of the QAQC program and results is presented in Section 11 of this Report. The data base for the Project is considered to be reliable and appropriate to prepare this Report.

The QP visited the Project on August 27-28, 2017. There was no activity on the Project at the time of the visit, therefore a review of active drill core handling, drill core Chain-of-Custody procedures, and QAQC methodologies could not be completed. A tour of the camp, core
logging and core storage facilities presented as a clean and well-organized work environment consistent with small-scale exploration camps seen elsewhere in BC.

Verification samples were collected by the writer to validate earlier analytical results. The suite of samples consisted of eight drill core samples representing a total of five holes drilled in the White Pass zone. The batch of samples was submitted to MS Analytical (MS) in Langley, BC, for analysis. The analytical methods used were Fire Assay with AAS finish for Au and four-acid digestion with ICP-AES/MS for ultra-trace multi-element analysis. The 2017 results for gold and copper were compared with those from the original samples and were shown to have a reasonably good correlation for both gold and copper.

Overall, the new data produced from the re-sampling and re-analysis of selected intervals of historical drill core correlated well with the original values and verified that mineralization occurs at interesting grades and are comparable to those reported for the Project.

### 1.8 Resource Estimates

There are no resources estimated for the Project.

### 1.9 Interpretation and Conclusions Recommendations

The Brenda Project has a relatively short exploration history from its discovery in 1950 to its first diamond drilling in 1988.

The Brenda Project includes four principal zones that have been the focus of exploration, including the EB, Takla, Creek and White Pass zones.

The EB and nearby Takla zones are vein occurrences in the western part of the Brenda Project. The EB zone carries low values of gold and silver in weakly silicified and quartz-veined pyritic andesite of the Takla Group. The EB zone appears to be limited in extent. The Takla zone is described as an epithermal vein occurrence, also within Takla Group rocks, that includes high grades of gold and silver in surface samples. Drilling of the zone was not encouraging. Both of the zones should be evaluated as part of a Project-wide reassessment.

The Creek zone is a gold-copper porphyry prospect that occurs near the northern boundary of the Brenda Project. Results from surface sampling and short, near-surface drillhole intersections returned low to moderate concentrations of silver, lead and zinc with anomalous levels of copper and gold. A detailed review of all existing data and, if warranted, modelling of the zone should be completed prior to any further physical work on the zone.

The White Pass zone has been the focus of exploration on the Brenda Project since 1993. It is an important gold-copper-silver porphyry prospect that is characterized by a strong colour anomaly caused by pervasive argillic and phyllic alteration of exposed volcanic rocks, a broad
gold-silver soil geochemical anomaly, a spotty copper soil geochemical anomaly, and a high chargeability anomaly. The zone has been tested by 41 diamond drillholes $(10,034 m)$ over the course of nine drilling programs that took place from 1992-2013.

The drilling demonstrated that White Pass zone mineralization occurs mainly within intermediate volcanic rocks of the Toodoggone Formation. Mineralization consists of quartz-magnetite $\pm$ pyrite $\pm$ chalcopyrite veinlets and stockwork zones and, locally, disseminated magnetite and pyrite within zones of strong phyllic and weak to moderate potassic alteration. Elevated concentrations of zinc and silver are common in the White Pass zone.

Drillhole data for the White Pass zone has been compiled and modelled. The resulting work recognized eight barren post-mineral dykes ("PMD") oriented approximately $135^{\circ} / 75^{\circ} \mathrm{S}$ and distinguished them from weakly mineralized (anomalous to weak gold and copper values) Black Lake intrusive rocks that are distinguished by infrequent quartz $\pm$ magnetite veins. White Pass zone mineralization is cut by the series of PMD resulting in alternating panels of mineralized rock and barren rock.

Modelling of White Pass zone data resulted in a Mineralized Zone (MZ), characterized by drillhole intersections of $>0.1 \mathrm{~g} / \mathrm{t} \mathrm{Au}$, and Higher Grade Zones (HGZ), characterized by drillhole intersections of $>0.4 \mathrm{~g} / \mathrm{t}$ Au. Three-dimensional shapes for the MZ and HGZ were generated in similar fashion to that of grade shell interpolation; some mineralized intervals cross PMD intervals if mineralization occurs on both sides of the PMD. The trend of the MZ has an orientation of $315^{\circ} / 30^{\circ} \mathrm{NE}$. The modelled shape for the MZ has approximate dimensions of 1000 m by 400 m and is from $100-600 \mathrm{~m}$ thick. The modelled shape for the HGZ has estimated dimensions of 200 m by 300 m and is 150 m thick.

Modelling of the White Pass zone suggests that additional mineralization may exist northeast and southwest of the zone. A chargeability anomaly is shown just below current shapes for the MZ and HGZ, and chargeability anomalies to the northeast and southwest of the shapes have not been drilled. Drilling has not tested beneath the chargeability anomalies. The modelling also identified several gaps between mineralized intervals. Targeted infill drilling may connect some of the existing higher grade intervals thereby expanding the dimensions of the HGZ.

The zone shows reasonably good correlation between gold, copper and silver. These metals are commonly accompanied by geochemically anomalous concentrations of zinc. Molybdenum is present over short intervals.

The generalized porphyry deposit model is characterized by anomalous concentrations of zinc and silver peripheral to its core. This relationship is common in other deeper porphyry deposits in British Columbia. The White Pass zone is unusual in that the central gold-copper zone carries significant levels of zinc. This may be the result of overprinting by multiple mineralizing events,
such as the overlapping of a high level porphyry system with that of a genetically related epithermal system, a feature not uncommon with telescoped porphyry systems (Sillitoe, 2010) or from post-mineral tilting of the porphyry system. Alternatively it may suggest that a higher grade copper-gold zone is yet to be discovered at the Brenda Project.

### 1.10 Recommendations

The following multi-parameter Phase I exploration program is recommended.

## Phase I

- A LiDAR survey should be flown over the entire Project area. Added control should be obtained by placing markers at highly visible known locations such as the camp, and drill sites and/or trenches.
- Relogging of select drillholes to confirm the PMD and mineralized Black Lake Intrusive intervals, and to check for mineralogical/alteration characteristics that distinguish higher grade zone mineralization from lower grade zone mineralization,
- Perform a data entry review to ensure that all compiled data is accurately represented in the database,
- Detailed field mapping and bedrock sampling of areas defined as anomalous by previous prospecting or regional mapping,
- Conduct soil geochemical sampling in select areas, as required, to expand upon or add further definition to existing geochemical anomalies,
- Complete a 400 line-km helicopter-borne ZTEM survey of the entire Brenda Project utilizing contractor Geotech Ltd. The airborne survey uses an electromagnetic method suitable for porphyry copper-gold exploration because of its deep penetrating capabilities and its capacity to map weak resistivity contrasts associated with alteration systems. The magnetic and resistivity results from the survey may help identify major structures, alteration zones and mineralized zones for drillhole targeting.
- Drill 3-4 oriented core holes to depths of at least 700 m on priority targets identified by the ZTEM survey and/or the exploration model presented in Section 25 of this report.
- All analysis should include gold by fire assay and multi-element analysis by four acid ICPAES.

The estimated cost of the recommended Phase I exploration program is $\$ 530,000$ and is laid out in Table 26-2. A second phase of exploration is also recommended to further define and assess targets on the Project, but is dependent on successful results arising from the completion of the Phase I program.

## 2 INTRODUCTION

### 2.1 Purpose of Report and Terms of Reference

Canasil Resources Inc. ("Canasil" or "the company") retained the writer to prepare a Technical Report ("Report") that complies with the requirements of National Instrument 43-101 ("NI 43101") for its Brenda Gold-Copper Project ("Project"). The Project includes a significant porphyry gold-copper prospect located between two former producing mines in the ToodoggoneKemess district of north-central British Columbia (BC), Canada. The writer of the report is Robert A. (Bob) Lane, MSc, PGeo, of Plateau Minerals Corp. who is a "Qualified Person" (QP) as defined by NI 43-101.

Canasil is a Canadian mineral acquisition and exploration company listed on the TSX-Venture Exchange (TSX VENTURE: CLZ). The company is focused on the development of gold and copper deposits in northern BC and in silver deposits in Mexico. The company maintains an office in Vancouver, BC.

The purpose of this Report is to disclose a comprehensive, current compilation of all exploration activities and results for the Project. This Report was prepared in accordance with the guidelines provided in NI 43-101, Standards of Disclosure for Mineral Projects (June 24, 2011) for technical reports, Companion Policy 43-101CP, Form 43-101F1, and using industry accepted Canadian Institute of Mining, Metallurgy and Petroleum (CIM) "Best Practices and Reporting Guidelines" for disclosing mineral exploration information, including CIM Definition Standards for Mineral Resources and Mineral Reserves (November 22, 2005).

### 2.2 SOURCES OF INFORMATION

This report is based on historical information and data compiled by Canasil including unpublished paper and electronic copies of reports, technical memos and correspondence, geologic maps, drill logs and cross-sections, and publically available reports and documents. All sources of data referenced in the text are listed alphabetically in Section 27 of this Report.

### 2.3 Site Visit and Scope of Personal Inspection

The QP visited the Project on August 27-28, 2017. Access to the site is via all-season gravel roads and seasonal mining exploration trails suitable for $4 \times 4$ pickup travel. On-site inspection included the camp and core storage areas, drillhole collar locations, one trench, exposures of bedrock, and drill core.

Verification core samples were collected from five different holes drilled on the White Pass zone in the period 1993-2004 and one chip sample from a trench excavated on the EB zone.

Canasil was completing an assessment of the Project's camp at the time of the visit.

## 3 RELIANCE ON OTHER EXPERTS

This report has been prepared for Canasil Resources Ltd. (Canasil) by Robert A. (Bob) Lane, MSc, PGeo (the qualified person or "QP" or "the writer") of Plateau Minerals Corp. The information, conclusions, and opinions contained herein are based on:

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

For the purpose of this report, the QP has relied on ownership information provided by Canasil. The QP has not researched title or mineral rights for the Brenda Project and expresses no opinion as to the ownership status of the mineral claims that comprise the Project. The QP did review the status of the mineral claims on the website of the Province of British Columbia's "Mineral Titles Online" website (https://www.mtonline.gov.bc.ca).

## 4 PROJECT DESCRIPTION AND LOCATION

### 4.1 LOCATION AND DESCRIPTION

The Brenda Gold-Copper Project is located in the Omineca Mining Division approximately 270 km north of Smithers and 450 km northwest of Prince George in north-central British Columbia (Figure 4-1). The Project is centered at latitude $57^{\circ} 15^{\prime} 18^{\prime \prime} \mathrm{N}$ and longitude $126^{\circ} 52^{\prime} 07^{\prime \prime}$ W (or UTM NAD83 coordinates of $6347784 \mathrm{~m} \mathrm{~N}, 628578 \mathrm{~m}$ E, Zone 9), and covers parts of BCGS maps 094E026 and 094E027. The Project is situated in mountainous terrain east of the Spatsizi Plateau, west of the Swannell Ranges and north-northwest of Thutade Lake.

The Project is located centrally within the northwest-trending Toodoggone-Kemess district, an area characterized by epithermal gold-silver veins and porphyry copper-gold systems. The district includes three former precious metal mines (Lawyers, Baker and Shasta) and one pastproducing copper-gold mine (Kemess South).

Porphyry deposits in the district are associated with Early Jurassic intrusive rocks of the Black Lake Suite that invade mafic volcanic rocks of the Late Triassic Takla Group and that are coeval with the overlying dacitic volcanic strata of the Early Jurassic Toodoggone Formation (Hazelton Group). Epithermal veins occur in both Takla Group and Toodoggone Formation host rocks.

The Project has excellent road access from Prince George by way of well-maintained Forest Service Roads, the Omineca Resource Access Road (ORAR) and mining access roads that provide direct road access onto the Project. The local access roads are open from late spring through to early fall. The Project is 25 km northwest of the Kemess South mine, 8 km east of the Shasta mine and 20 km southeast of the Baker mine. The Brenda Project includes both porphyry gold-copper prospects and epithermal gold-silver showings. Four mineralized zones, including White Pass, Creek, EB and Takla, have been the subject of detailed exploration including diamond drilling.

There are no resources or reserves estimated for the Project.
There has been no production from the Project.

### 4.2 Tenure and Ownership

The Brenda Project consists of 22 contiguous mineral claims totaling 4,450.0 hectares of subsurface mineral rights in the Omineca Mining Division. Canasil acquired certain Project claims from Canmine Development Company Inc. in 1985-1986 and later expanded the size of the Project through staking additional claims. Canasil has kept the claims in good-standing since the acquisition and staking occurred. All of the claims are 100\%-owned by Canasil Resources Inc. (Free Miners Certificate: 104199) and are valid until at least May 30, 2024. None of the claims are subject to any underlying interests or royalties and there are currently no agreements
with other parties that pertain to the Project. The individual mineral claims that comprise the Project are listed in Table 4-1 and their distribution is shown in Figure 4-2.

To extend the expiry date of the mineral claims, the claim holder must, on or before the anniversary date of the claim record exploration and development (assessment) work carried out on that claim during its current anniversary year. The amount of assessment work required in the first 2 years is $\$ 5$ per hectare per year; in years 3 and 4 is $\$ 10$ per hectare per year, in years 5 and 6 is $\$ 15$ per hectare per year in year, and in subsequent years is $\$ 20$ per hectare per year. Alternatively, the claim holder can pay cash in lieu of meeting the physical work requirements at double the corresponding assessment work value.

The Project does not include any surface tenures.
The project is not encumbered by any National or Provincial parks, or by any other type of protected area.

### 4.3 Indigenous and Local Community Relations

The Brenda Project lies within the traditional lands of several local indigenous groups. Canasil communicates with these groups on an intermittent basis regarding its planned exploration activities. The writer is not aware of any agreements that have been negotiated with any of the local indigenous groups.

The writer is not aware of any other encumbrances, or potential encumbrances, that would negatively impact the future exploration of the Project.

### 4.4 Permitting, Environmental Liabilities and Other Issues

Proposed mechanical exploration on the Brenda Project is currently pending approval by the British Columbia Ministry of Energy and Mines (BCMEM) under existing permit MX-GEN-54.

The proposed Multi-Year, Area-Based (MYAB) exploration program consists of geophysical surveys (ZTEM and Titan24 or 3DIP surveys), ten diamond drillholes, and up to 3 km of associated drill trail construction. If granted it will require an additional $\$ 15,000$ bond on top of the existing reclamation bond for the Project ( $C \$ 40,000$ ); the funds are held under Permit MX-GEN-54 by the Minister of Finance, and will be only be released to the company upon reclamation of the Project is deemed satisfactory by a Mines Inspector from the BCMEM.

Water for use in diamond drilling activities may require an application under the "Water Use for Mineral Exploration and Small Scale Placer Mining under the Water Sustainability Act" which was updated in April 2016.

There are no known environmental liabilities associated with the Project that at present accrue to Canasil. Once the proposed work has been approved, Canasil will be required to file an

Annual Summary of Exploration Activities (ASEA) with BCMEM each year that the permit is in effect.

All filings are current.



Table 4-1: Mineral Claims, Brenda Project

| Tenure Number | Claim Name | Owner | Tenure Type | Tenure Sub Type | Map Number | Issue Date | Good To Date | Area <br> (ha) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 238271 | BRENDA\#1 | 104199 (100\%) | Mineral | Claim | 094E026 | 1980/jun/13 | 2024/may/30 | 25 |
| 238272 | BRENDA\#4 | 104199 (100\%) | Mineral | Claim | 094E026 | 1980/jun/13 | 2024/may/30 | 25 |
| 238273 | BRENDA \#5 | 104199 (100\%) | Mineral | Claim | 094E026 | 1980/jun/13 | 2024/may/30 | 25 |
| 238274 | BRENDA\#6 | 104199 (100\%) | Mineral | Claim | 094E026 | 1980/jun/13 | 2024/may/30 | 25 |
| 238275 | BRENDA\#7 | 104199 (100\%) | Mineral | Claim | 094E026 | 1980/jun/13 | 2024/may/30 | 25 |
| 238276 | BRENDA \#8 | 104199 (100\%) | Mineral | Claim | 094E026 | 1980/jun/13 | 2024/may/30 | 25 |
| 238770 | JAN 1 | 104199 (100\%) | Mineral | Claim | 094E026 | 1984/mar/29 | 2024/may/30 | 150 |
| 238771 | JAN 2 | 104199 (100\%) | Mineral | Claim | 094E026 | 1984/mar/29 | 2024/may/30 | 400 |
| 238872 | MAX NO. 1 | 104199 (100\%) | Mineral | Claim | 094E026 | 1984/aug/21 | 2024/may/30 | 25 |
| 238873 | MAX2 | 104199 (100\%) | Mineral | Claim | 094E026 | 1984/aug/21 | 2024/may/30 | 25 |
| 238874 | MAX 3 | 104199 (100\%) | Mineral | Claim | 094E026 | 1984/aug/21 | 2024/may/30 | 25 |
| 239100 | JAN 6 | 104199 (100\%) | Mineral | Claim | 094E026 | 1986/feb/28 | 2024/may/30 | 100 |
| 239101 | JAN 7 | 104199 (100\%) | Mineral | Claim | 094E026 | 1986/feb/28 | 2024/may/30 | 500 |
| 239102 | JAN 8 | 104199 (100\%) | Mineral | Claim | 094E026 | 1986/feb/28 | 2024/may/30 | 250 |
| 239522 | POCK | 104199 (100\%) | Mineral | Claim | 094E026 | 1987/jul/06 | 2024/may/30 | 400 |
| 239523 | HANS | 104199 (100\%) | Mineral | Claim | 094E026 | 1987/jul/06 | 2024/may/30 | 150 |
| 239993 | TOM 4 | 104199 (100\%) | Mineral | Claim | 094E026 | 1988/may/31 | 2024/may/30 | 150 |
| 240972 | JAN \#9 | 104199 (100\%) | Mineral | Claim | 094E026 | 1989/jul/06 | 2024/may/30 | 400 |
| 306720 | TOM 3 | 104199 (100\%) | Mineral | Claim | 094E026 | 1988/may/31 | 2024/may/30 | 225 |
| 306721 | TOM 5 | 104199 (100\%) | Mineral | Claim | 094E026 | 1988/may/31 | 2024/may/30 | 500 |
| 319655 | KATH 1 | 104199 (100\%) | Mineral | Claim | 094E027 | 1993/jul/19 | 2024/may/30 | 500 |
| 319657 | KATH 3 | 104199 (100\%) | Mineral | Claim | 094E027 | 1993/jul/20 | 2024/may/30 | 500 |

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

### 5.1 Access

The Project is accessible seasonally by road. Well-maintained Forest Service gravel roads lead north from the towns of Mackenzie and Fort St. James and connect to the Omineca Resource Access Road (ORAR) which extends past the Project. A rougher road, suitable for a $4 \times 4$ pick-up then runs 20 km to the centre of the Project.

### 5.2 CLIMATE

The climate is generally moderate, although snow can occur during any month. Temperatures range from $-35^{\circ} \mathrm{C}$ to $30^{\circ} \mathrm{C}$ with frost-free conditions from June through mid-August. Average annual precipitation of approximately 890 mm is moderate and is more or less distributed throughout the year. Exploration can comfortably be conducted from May through September.

### 5.3 Local Resources

There is little in the way of local resources. The Brenda Project is located in a remote area of north-central BC , and there are no local communities from which to draw career professionals and labourers skilled in the mining profession. The Kemess South minesite is an important seasonal exploration base maintained by Aurico Metals Inc.

The closest communities of scale are Mackenzie and Fort St. James, located 235 km south and 355 km southwest, respectively, of the Project. Both communities are resource-based, and offer a range of provisions and services suitable for the mining and exploration sectors.

### 5.4 INFRASTRUCTURE

Local infrastructure on the Brenda Project site includes a small camp consisting of several wooden cabins, a 24 -foot storage container, a core logging facility, and an intact system of access roads and exploration trails.

There is no power to the site, but 3-phase power does extend from Williston Lake to the Kemess South mine site located 25 km south of the Project. The Kemess airfield is located approximately one hour drive from the Project, and the Sturdee Valley airstrip is located 21 km west of the Project along the principal access road. The significant infrastructure developed for the Kemess South mine (air and road access, electricity) is an asset for the area.

### 5.5 PhYSIOGRAPHY

The area is characterized by broad, open, drift and moraine covered valleys, yielding to subalpine plateaus and rugged incised peaks and cirques. Elevations range from 1200-1800m above sea level (asl), with the tree line at about 1500 m asl. The principal area of drilling on the White Pass zone is at approximately 1600 m asl.


## 6 HISTORY

### 6.1 Toodoggone-Kemess District

The earliest reports of exploration activity in the area date back to the discovery of placer gold at the mouth of McConnell Creek in 1889. Several years later there was a brief staking rush in 1907 and prospecting remained active in the area through the early 1920's resulting in a placer discovery at McClair Creek. Cominco Ltd. was active in the area in the 1930's exploring for base metals (Diakow et al., 1993).

In 1966 Kennco Explorations (Western) Limited conducted reconnaissance exploration programs to evaluate the Toodoggone-Kemess district for copper porphyry systems. Follow-up fieldwork was conducted on several prospects including Kemess North, Pine, Fin, Chappelle (aka Baker), Shasta and Lawyers. The latter three prospects are gold-silver epithermal vein systems that later became small, short-lived producing mines, albeit potential exists for further exploration and development of these shallow mineral systems. Exploration in the vicinity of a prominent gossan that demarcates the Kemess North porphyry gold-copper deposit led to the discovery of the Kemess South porphyry gold-copper deposit. Kemess South was put into production in 1998 by Royal Oak Mines. Northgate Exploration Ltd. took over the mining operation in 2001. The mine closed in 2011, but during its operation a total of 783.6 million pounds of copper and 2.95 million ounces of gold were recovered from the processing of 228.7 million tonnes of ore (MINFILE, 2015).

Exploration in the Toodoggone-Kemess district continues with a focus on both epithermal goldsilver systems and gold-copper porphyry deposits, including the Kemess Underground and Kemess East deposits of Aurico Metals Inc. (Aurico). Aurico received an environmental certificate for development of its Kemess Underground deposit on March 15, 2017.

### 6.2 History of the Brenda Project

A synopsis of the exploration history of the Brenda Project is shown in Table 6-1. Locations of the mineralized zones that were the subject of exploration are shown in Figure 6-1.

In 1950, Bralorne Mines Ltd. engaged Emil Bronlund to prospect areas in the ToodoggoneKemess district. He discovered gold-bearing quartz in bedrock near the confluence of Jock and Red creeks and staked the Jock 1-4 claims to cover his find. In 1951, Bronlund discovered gold and silver-bearing quartz-chalcedony breccia in outcrop and float (the Tarn showing) at higher elevations on Red Creek and also in the headwaters of nearby White Creek. Sampling of the material on Red Creek by Bronlund returned values of up to $1.87 \mathrm{oz} /$ ton ( $64.1 \mathrm{~g} / \mathrm{t}$ ) Au and 102.0 oz/ton (3,497 g/t) Ag (float sample 746; Bronlund, 1951).

## Canmine Development Company Inc. 1980-1984

In 1980, in cooperation with Bronlund, the Brenda claims were staked for private company Canmine Development Company Inc. (Canmine) to cover the exposures located along Jock Creek near its confluence with Red Creek. Through the early-mid 1980s, Canmine staked more adjoining claims and carried out programs of prospecting, bedrock mapping, geochemical and geophysical surveys and trenching.

Table 6-1: Brenda Project - Exploration History

| Year(s) | Activity |
| :---: | :---: |
| 1950-51 | Discovery of gold-bearing epithermal quartz veins along Jock and Red creeks by Emil Bronlund |
| 1980-84 | Prospecting and hand trenching on the veins by Canmine Development Co. Ltd. |
| 1985 | Detailed mapping, geophysical surveys and soil sampling conducted along Jock Creek by Canasil Resources Inc. (Canasil) |
| 1987 | Trenching and geochemical surveys completed on the veins by a joint venture partnership between Canasil and Cypress Gold Canada Inc. (Cyprus) |
| 1988 | Cypress completed a total of 12 diamond drillholes ( $1,219 \mathrm{~m}$ ) on the Creek, EB and Takla zones, but later relinquished its option on the property |
| 1989 | Canasil completed a soil geochemical survey on the White Pass zone |
| 1990 | Canasil conducted follow-up trenching on the White Pass, Creek and EB zones |
| 1991 | Canasil conducted hand trenching and rock sampling on the White Pass, Creek and EB zones, and completed additional soil sampling on the White Pass zone |
| 1992 | Canasil drilled a total of 721 m in 13 holes ( 4 holes on the White Pass zone, 2 holes on the Creek zone, and 7 holes on the EB zone) |
| 1993 | Romulus Resources Ltd. completed IP/resistivity and magnetic surveys, soil sampling, and drilled 957 m in 4 holes in the White Pass area |
| 1994-97 | Canasil conducted soil geochemistry, hand trenching and 1919m of diamond drilling in 16 holes on the White Pass and East Creek zones |
| 2002 | Northgate Exploration Ltd. conducted airborne magnetic, radiometric and satellite imaging surveys followed by 1649m of diamond drilling in 4 holes |
| 2003 | Northgate completed 1,484m of diamond drilling in 5 holes on the White Pass zone |
| 2004 | Northgate completed 1,446m of diamond drilling in 5 holes on the White Pass zone |
| 2007 | Canasil completed 32.2 line-km of IP and $1,709 \mathrm{~m}$ of diamond drilling in 5 holes on the White Pass zone |
| 2013 | Canasil completed 963m of diamond drilling in 1 hole on the White Pass zone |



In 1981, Canmine completed a small soil sampling grid immediately south of Jock Creek near its confluence with Red Creek collecting 88 soil samples and six rock samples. All of the samples were analyzed for $\mathrm{Cu}, \mathrm{Pb}, \mathrm{Zn}, \mathrm{Ag}, \mathrm{Au}$ and Hg by atomic absorption. Several gold-copper soil anomalies were identified. Gold values ranged from $5-175 \mathrm{ppb}$ with one outlier of 1.07 ppm Au . Copper values ranged 50-310 ppm (Hrkac, 1982).

In 1984, Canmine conducted prospecting and hand trenching in areas of anomalous gold and silver-bearing float mineralization previously identified by Bronlund. Hand trenching efforts did not reach bedrock. Prospecting at higher elevations located a small quartz stockwork that returned up to 67.0 ppm Au (Weishaupt, 1993).

## Canasil Resources Inc. 1985-1986

In 1985, Canmine optioned the Project to Canasil Resources Inc. (Canasil). Detailed geological mapping, geophysical surveying and soil sampling along Jock Creek was performed. Mineralized quartz-breccia with very low Gold values were located. Prospecting of Red Creek and its basin located further high grade float with values ranging from 0.30-0.50 oz/ton Au and 4.0 - 63.5 oz/ton Ag. Quartz-alunite outcrops were also located (Weishaupt, 1993).

In 1986, Canasil focused its efforts in the Creek and Takla zones. It collected 189 soil samples from the Creek zone grid, and a total of 53 rock samples from hand excavated trenches covering $150 \mathrm{~m}^{2}$ and from 110 m of shallow 'test hole' drilling using a J.K. Smit 'winkie' diamond drill. A total of 48 silt samples were collected from a broader area of the Project. Core and rock samples from the Creek zone returned values ranging from 1-640 ppb Au and 0.4-135.5 ppm Ag. Core and rock samples from the Takla zone returned values ranging from 5-51000 ppb Au and $0.1-314 \mathrm{ppm}$ Ag (Weishaupt, 1987). VLF-EM16R geophysical surveys were also completed over the Creek and Takla zones. Survey results outlined narrow, west-trending resistivity anomaly on the Creek zone that correlate with areas of secondary silica, and a narrow northwest-trending resistivity anomaly on the Takla zone (Weishaupt, 1987).

## Cypress Gold Canada Inc. (Cyprus) 1987-1988

In 1987, Cyprus Gold Canada Inc. (Cyprus) signed a joint venture agreement with Canasil and constructed an access road to the project. Additional hand trenching and geochemical surveys along Jock Creek were done (Weishaupt, 1993), but details of this work were not available to the writer.

In 1988, Cyprus optioned the Brenda Project and completed multi-disciplinary program that included an aggregate of 804 " B " horizon soil samples, and a total 74 rock samples were collected from the Takla and Creek grids. Bedrock mapping and EM16-R, magnetics and multipole IP resistivity surveys were also completed over the gridded areas. Soil geochemistry was unsuccessful in detecting anomalous gold coincident with the Takla showing, perhaps
because of extensive development of ferricrete in the area (Weishaupt, 1989). Significant anomalous gold values were confirmed on the Creek grid where the main anomaly, up to 50 m wide including values of up to 620 ppb Au and 3.6 ppm Ag , coincides with zones of quartz breccia discovered by trenching prior to 1988.

In 1988, a 12 -hole diamond drill program totaling $1,219 \mathrm{~m}$ was completed; a total of 354 core samples were collected and analyzed. Eight holes were drilled in the Takla zone and four holes were drilled in the Creek zone. The drill holes intersected short intervals of chalcopyrite, sphalerite, galena and pyrite mineralization within zones of strongly kaolinite, silica and epidotealtered quartz-chalcedony stockwork, breccia and veins across widths ranging from of 2.6514.5 m . Anomalous silver, lead and zinc were obtained in all four Creek zone holes (Weishaupt, 1989).

## Canasil Resources Inc. 1989-1992

From 1989 through 1991, Canasil completed modest trenching programs, and geophysical and geochemical surveys on the White Pass, Creek and EB zones.

The 1989 field program consisted of line cutting, soil sampling and geophysical surveys in the new White Pass zone. The White Pass grid was established parallel to a fault interpreted from airborne magnetic data and included two exposures of altered volcanic rocks rich in alunite, a common product of high-sulphidation or acid sulphate epithermal systems (Panteleyev, 1996). A total of 712 soil samples were collected from the White Pass grid; results outlined a 600 m north by $20-120 \mathrm{~m}$ east gold-silver geochemical anomaly with spotty copper, lead and zinc values (Weishaupt, 1989). The size, orientation and location of this anomaly was suggestive of a gold and silver-bearing structure associated with the noted alteration and/or the interpreted fault.

Prior to the 1990 field season, Canasil Resources Inc. signed an agreement with Mingold Resources Inc. to provide funds to trench previously determined target areas. In 1990, Canasil conducted a program of line cutting, soil sampling, rock sampling and backhoe trenching in the White Pass, Creek and EB zone areas. A total of 110 soil samples were collected from an expanded grid on the White Pass zone, and analyzed for gold and silver. A total of 792 lineal metres of backhoe trenching was completed (White Pass zone: 10 trenches, 418m, 135 chip samples; Creek zone: 8 trenches, $328.5 \mathrm{~m}, 23$ chip samples; EB zone: 1 trench, 45.5 m , 21 chip samples). Rock chip samples collected from the EB zone were analyzed for gold and silver, while all other rock chip samples were analyzed for a suite of 30 elements by ICP, and for gold by Acid Leach/Atomic Absorption (AA).

Trenching on the EB zone exposed a large silicified breccia and stockwork zone oriented 008/68$82^{\circ}$ E. Assay results from 1 m chip samples taken across the strike of the zone returned values that ranged from 99-4920 ppb Au and from 3.7-138.2 ppm Ag (Weishaupt, 1991). Trenching on
the White Pass zone encountered highly sheared, fractured, and pervasively argillic and propylitic-altered trachy-andesite with local dark grey chalcedony quartz stringers, quartz fragments, and weak (Weishaupt, 1991). The best results occurred over an 18 m interval in trench WP5 that averaged $1.01 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 0.038 \% \mathrm{Cu}, 4.5 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and 55 ppm Mo. At the Creek zone, trenching exposed limited bedrock due to deep overburden. It consisted of highly silicified green andesite crystal tuff cut by quartz fractures and veinlets carrying varying amounts of sphalerite, galena and chalcopyrite. Results from limited chip sampling included a 6 m interval in trench CG7 that averaged $0.187 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 0.169 \% \mathrm{Cu}, 6.9 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 37 \mathrm{ppm} \mathrm{Mo}, 0.09 \% \mathrm{~Pb}$ and $1.25 \% \mathrm{Zn}$. In nearby trench CG-8, a 1 m chip sample returned a value of $11.64 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $5.7 \mathrm{~g} / \mathrm{t}$ Ag (Weishaupt, 1991).

In 1991, Canasil collected and analyzed an additional 163 soil samples to expand the size of the White Pass grid. It also completed 13 hand-cut trenches and 4 test pits on the zone from which 43 rock samples were collected and analyzed (Weishaupt, 1992). The soil sampling expanded the White Pass gold anomaly to 800 m by $20-140 \mathrm{~m}$, while 33 of 43 rock samples returned $>75$ ppb Au. Canasil also submitted a total of 331 soil samples collected from the Creek zone, and completed drilling and blasting of test pits on the Creek and EB zones from which 15 large samples were collected and analyzed. Ferricrete was observed to overlie bedrock at lower elevations making for difficult interpretation of the data. The Creek zone test pit broke through the ferricrete and bedrock samples collected from the excavation returned values of up to 2752 $\mathrm{ppm} \mathrm{Cu}, 38648 \mathrm{ppm} \mathrm{Zn}$ and anomalous levels of silver and gold (Weishaupt, 1992). Rock samples from the EB zone returned up to $1.71 \mathrm{~g} / \mathrm{t}$ Au and $58.2 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$.

In 1992, Canasil drilled two holes on the Creek zone, four holes (271m) on the White Pass zone and seven holes on the EB zone. On the Creek zone, drillhole CR-92-01 contained an interval (from $5.2-7.2 \mathrm{~m}$ ) that assayed $0.359 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 0.044 \% \mathrm{Cu}, 0.29 \% \mathrm{~Pb}$ and $0.66 \% \mathrm{Zn}$ (Weishaupt, 1993). Strongly anomalous values of copper and gold were intersected in all four holes drilled on the White Pass zone. Hole WP-92-04 returned the best interval of gold mineralization: 26.6 m averaging $0.915 \mathrm{~g} / \mathrm{t}$ Au with 282 ppm Cu , while hole WP 92-03 returned the best interval of copper mineralization: 9.5 m averaging $0.19 \% \mathrm{Cu}$ with $0.772 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ (Weishaupt, 1993). Drilling of the EB zone failed to intersect encouraging grades of mineralization. The highest assay value was $0.675 \mathrm{~g} / \mathrm{t}$ Au and $6.5 \mathrm{~g} / \mathrm{t}$ Ag over 1 m in drillhole EB-92-04 (Weishaupt, 1993).

The relatively high grades of zinc and lead are a characteristic of the Creek zone along with gold and copper grades that are approximately equivalent. The White Pass zone is characterized by higher grades of gold and lower grades of copper. Silver and molybdenum values in both zones are not insignificant.

## Romulus Resources Ltd. 1993

In 1993, Romulus Resources Ltd. (Romulus) completed a multi-parameter exploration program on the Project, including soil geochemical sampling, Induced Polarization (IP) and magnetic geophysical surveys and diamond drilling. A total of 490 soil samples were collected from the expanded White Pass grid bringing the number of samples collected from the area to 1,554 . These surveys outlined a well-defined gold anomaly exceeding 50 ppb Au that measured 800 m by 800 m . Silver showed a strong spatial association with gold, while copper formed a smaller anomaly within the broader gold zone. A 30 line-km IP survey outlined several broad zones of high chargeability, some of which correlated approximately with gold-silver-copper soil signatures. One large chargeability anomaly with elevated resistivity does not have a soil geochemical expression. The magnetic survey showed an area of discontinuous magnetic highs that roughly coincided with the outline of the gold-silver-copper soil geochemical anomaly.

Romulus drilled 4 deep holes in the White Pass area that substantiated the gold-rich character of the porphyry gold-copper mineralization on the Project. Results included 47.86 m averaging $1.10 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 0.13 \% \mathrm{Cu}$ and 4.8 ppm Ag in hole $93-1$ and 108.8 m averaging $0.48 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 0.144 \%$ Cu and $1.0 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ in hole 93-3 (Rebagliati, 1993). These results confirmed the presence of an auriferous porphyry system that is open for extension and represents a gold-copper porphyry target warranting further exploration. The diamond drilling and the IP results suggested that the White Pass (Brenda) zone gold-copper mineralization is associated with (parallel) linear structural zones. Additional trenching and drilling were recommended in an effort to extend of the dimensions of the zone. Project-wide geochemical and geophysical surveys were recommended along with test pitting of two coincident IP-geochemical anomalies.

## Canasil Resources Inc. 1995-1997

Drilling campaigns completed by Canasil in 1995-1997 totaled 1,919m in 16 holes and returned mixed results. In 1995, drillholes 95-01 and 95-02 tested an IP anomaly 2.0 km east of the White Pass zone, while drillholes 95-03 and 95-04 tested the White Pass zone. A total of 27 core samples were collected for analysis. Most of the holes intersected pyritic volcanics with anomalous levels of gold and copper. The most encouraging intersection was a 41.50 m interval in hole $95-03$ that averaged $0.77 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 0.11 \% \mathrm{Cu}$ and $3.3 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ (Weishaupt, 1996).

In 1996, Canasil drilled one hole (130.75m) in the Creek zone, and six holes (576.03m) in the White Pass zone. A total of 126 core samples were collected for analysis. A 7.47 m interval at the top of the Creek zone drillhole averaged 588 ppb Au and 1173 ppm Cu (Weishaupt, 1996); the remainder of the hole was weakly to moderately anomalous in gold and copper. The six White Pass drillholes were grid-based and closely-spaced to test a gold soil geochemical anomaly in the central part of the phyllic-altered zone. None of the holes tested the zone to significant
depths, but did produce encouraging results, including: $0.605 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $0.123 \% \mathrm{Cu}$ over 60.35 m in hole BR-96-03, and $0.832 \mathrm{~g} / \mathrm{t}$ Au and $0.139 \% \mathrm{Cu}$ over 62.50 m in hole BR-96-07.

In 1997, Canasil completed five drillholes (734.25m) to assess the southwest and northwest projection of White Pass zone mineralization within the geochemical and geophysical anomalies. A total of 98 core samples were collected for analysis. Drillhole 97-02 was highly anomalous in gold to a depth of 105.76 m and included a 39.93 m interval that averaged $1.12 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 0.18 \% \mathrm{Cu}$, $3.2 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and $>800 \mathrm{ppm} \mathrm{Pb}$ and $>800 \mathrm{ppm} \mathrm{Zn}$ (Weishaupt, 1998).

## Northgate Exploration Ltd. 2002-2004

Northgate Exploration Ltd. (Northgate) undertook exploration programs in 2002, 2003 and 2004 under an Option and Joint Venture agreement that it signed with Canasil in July, 2002. This work included initial airborne high resolution magnetic, radiometric and satellite imaging surveys followed by three consecutive diamond drilling campaigns totaling $4,580 \mathrm{~m}$ in 14 holes. Details of the airborne and satellite surveys were not reported.

In 2002, Northgate completed 1649.3 m of diamond drilling in four holes on the White Pass zone. A total of 866 core samples were collected and analyzed by a 34 element ICP package using a nitric-aqua regia digestion. Analysis for gold was by fire assay with an atomic absorption finish (Pautler, 2002). All four 2002 drillholes successfully intersected mineralized zones with anomalous grades of copper and gold, and expanded the surface dimensions of the White Pass zone to a $0.8 \times 1.3 \mathrm{~km}$ area.

In 2003, Northgate completed $1,484.1 \mathrm{~m}$ of drilling in 5 diamond holes on the White Pass zone. A total of 678 core samples were collected and analyzed by a 34 element ICP package using a nitric-aqua regia digestion. Analysis for gold was by fire assay with an atomic absorption finish on a one assay ton equivalent analytical charge (Pautler, 2003). The drilling intersected significant gold-copper mineralization over considerable widths including $0.55 \mathrm{~g} / \mathrm{t}$ Au and $0.08 \%$ Cu over 167 m in hole BR 03-7 and $0.38 \mathrm{~g} / \mathrm{t}$ Au and $0.11 \%$ Cu over 80 m in hole BR 03-6 (Pautler, 2003).

In 2004, Northgate completed $1,445.7 \mathrm{~m}$ of drilling in 5 diamond drill holes on the White Pass zone. A total of 686 core samples were collected, and analyzed by a 34 element ICP package using a nitric-aqua regia digestion (method ME-ICP41). Analysis for copper was also by assay (method Cu-AA49). Analysis for gold was by fire assay with an atomic absorption finish (method Au-AA23).

Northgate showed that significant mineralization occurs over a strike length of at least 520 m and to depth of at least 450 m , and returned significantly longer intersections of gold and copper mineralization (up to 243 m ) than those from earlier programs. Gold mineralization was
shown to be reasonably evenly distributed in the $0.5 \mathrm{~g} / \mathrm{t}$ Au range, while copper grades were typically in the 0.05-0.15\% Cu range (Edmunds and Kay, 2004).

Topography was shown to be an effective mirror of the subsurface, with monzonite dykes creating resistive ridges while faults and volcanics create recessive gullies. Late east-west local faulting plays a significant role in juxtaposition of mineralized zones. If properly understood, this structural regime may yield significant new targets.

Edmunds and Kay (2004) concluded that it was unlikely that near surface or shallower mineralization observed at the White Pass zone would develop into an economic deposit because of the high degree of intrusive dilution and structural dissection. However, they argued that potential exists for more zones on the Project and suggested that a complete synthesis of all Project data may result in the identification of new targets. In November, 2004, Northgate terminated its option and joint venture agreement and returned $100 \%$ interest in the Project to Canasil.

## Canasil Resources Inc. 2006

In 2006, Canasil contracted Dr. Andre Panteleyev to complete a bedrock mapping program over the central part of the Project. He outlined a large advanced argillic alteration zone capped with quartz alunite that lies immediately to the northeast of the previously drilled main White Pass area. The zone trends north-south and measures approximately 1200 m north-south by 800 m east-west, and is open to the south (see Figure 7-3). Quartz alunite ribs, or 'ledges', are present at higher elevations. The zone is associated with anomalous gold and molybdenite soil geochemistry and is rimmed by anomalous zinc and lead soil geochemistry. Panteleyev regarded the features of this large alteration zone to be characteristic of the upper levels of copper gold porphyry systems (Panteleyev, 2006).

The zone itself had not been drilled, but drilling immediately southwest of and adjacent to the alteration zone (holes 93-03, 03-06, 03-07, 04-10 and 04-14) returned highly anomalous values of copper and gold. Drill core from these holes display argillic alteration that overprints albite and propylitic alteration, some with extensive gypsum and fluorite veining. The argillic alteration is characterized by pervasive clay (illite) alteration with iron oxides after pyrite, pyrite, minor secondary copper minerals and sphalerite. Gold-copper values and the length of mineralized intervals appear to be increasing to the northeast towards the large newly mapped alteration zone (Panteleyev, 2006).

## Canasil Resources Inc. 2007

In 2007, Canasil completed a 3-dimensional Induced Polarization (3D-IP) geophysical survey and five-hole $(1,708 \mathrm{~m}) \mathrm{HQ}$ diamond drilling program. The results were thought to have identified a deep porphyry gold-copper system at the White Pass zone.

## Geophysics

In 2007 Canasil contracted SJ Geophysics to complete a three-dimensional induced polarization (3D-IP) survey of a 4 km by 2 km area that included the White Pass zone (Figure 6-2). The survey consisted of 15 lines with an aggregate length of 32.2 km . The lines followed an azimuth of $232^{\circ}$, and were spaced either 100 m or 200 m apart with stations spaced at 50 m intervals along the lines. The main purpose of the survey was to further model and characterize the White Pass zone and provide additional vectoring information for exploration drilling.

The 3D Inversion Model Interpreted Chargeability plan maps outline a strong chargeability high at a depth of 100 m with a $>30 \mathrm{~ms}$ core between Lines 10800 N and 11000 N , and centered at UTM co-ordinates of $6348400 \mathrm{~N}, 628660 \mathrm{E}$. At deeper levels ( 300 m and 400 m below surface; Figure 6-3) two northwest-trending chargeability features of similar strength flank a prominent northwest-trending chargeability-low/resistivity-high feature that extends from Line 10800 N to 9800N.

The chargeability cross-sections identify two chargeability highs ( $>30 \mathrm{~ms}$ ) that have a subvertical orientation. One of the chargeability highs is situated between 11000 N and 10800 N and centered at approximately 900E; and the other is situated between 10400 N and 10800 N (Figure $6-4)$ and centered at about 400E (Rastad, 2008). Both chargeable zones strengthen with depth with the latter becoming very prominent at 300 m below surface.

The resistivity cross sections depict a near-surface resistivity low layer (<1000 Ohm-m) overlying a more resistive layer ( $>2500$ Ohm-m) with the contact between the two zones at a depth of between 200 and 250m (see Figure 6-3; Rastad, 2008). This phenomenon may reflect surface weathering and oxidation as well as the presence of broad surface zones of intense argillic and phyllic alteration.

## Diamond Drilling

In 2007, Canasil completed five drillholes (1709m) on the White Pass zone. A total of 628 core samples were collected and analyzed.

The first three holes of the program (BR-07-01, BR-07-02 and BR-07-03) were drilled to relatively shallow depths to test for mineralization beneath a broad area of argillic alteration east of previous drilling. Holes BR-07-01 and BR-07-02 intersected weakly propylitic-altered latites and a quartz monzonite dyke. Mineralization in the latite consisted of $1-8 \%$ disseminated finegrained pyrite. Analysis of the propylitic-altered latite produced very weak copper and gold values, with one lone notable gold assay of $0.74 \mathrm{~g} / \mathrm{t}$ Au over 2 m within narrow zones of silicification. Drillhole BR-07-03 was spotted approximately 800 m due east of drillhole BR-0702 and tested a surface zone of quartz-alunite-clay alteration and surrounding argillic alteration within the airborne magnetic high that extends eastward from the main White Pass zone. The
quartz alunite-argillic alteration zone is also surrounded by a large lead-zinc geochemical soil anomaly. The hole intersected phyllic-altered latitic volcanics with disseminated pyrite and uncommon quartz veinlets, and narrow quartz monzonite dykes. Individual sample intervals carried up to $15 \%$ disseminated pyrite and up to $0.5 \%$ chalcopyrite. Millimeter-scale quartz+/calcite stringers containing sphalerite and galena were also noted throughout. Results were poor with most intervals carrying less than 50 ppm copper and negligible gold. Exceptions were a 2 m sample near the top of the section that graded 1850 ppm Cu , and another near the bottom of the section that assayed $0.95 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ (Nordin and Lane, 2008).

Drill holes BR-07-04 and BR-07-05 were drilled to test for mineralization beneath previous holes BR-03-07 and BR-97-01, respectively. Drillhole BR-07-04 was established in the central White Pass zone and encountered dark grey phyllic-altered to potassic-altered porphyritic latite from $90.12-260.1 \mathrm{~m}$. Quartz-magnetite stockworks with minor amounts of pyrite and chalcopyrite, as well as an increase in disseminated pyrite, were noted throughout this lower section, as were narrow zones of chloritic alteration, zones of increased hematite and local calcite veining. A quartz monzonite dyke interrupted the volcanic sequence from 260.1-273.6m, but phyllicaltered latite resumed to a depth of 379.7 m . The latite was interrupted by five more quartz monzonite dykes, ranging in width from 1.8-6.4m, over an interval between 379.7 and 453.8 m . The intervening panels of latite in this interval displayed moderate to pervasive phyllic alteration with zones of moderate to intense potassic alteration (Nordin and Lane, 2008). Potassic-altered zones were consistently accompanied by an increase in quartz-magnetite+/-sulphide veining and disseminated magnetite and pyrite and, as a consequence, an increase in gold and copper grades. Four zones of gold-copper mineralization were intersected in drillhole BR-07-04 (Table $9-2$ ). These zones correspond directly with the potassic altered volcanic rocks and grades increase with intensity of alteration as well as with depth. The (post-mineral?) quartz monzonite dykes are typically weakly mineralized or barren of mineralization. Where narrow, the dykes have been incorporated into drill assay composites, therefore diluting the overall grade of each reported intersection. Near the dykes the potassic alteration has been overprinted by a pale green siliceous sericite-pyrite alteration with a marked decrease in copper and gold values.

Significant mineralized intercepts from drillholes BR-07-04 and BR-07-05 are listed in Table 6-2.

## Summary

Overall, drillholes BR-07-04 and BR-07-05 intersected broad zones of gold-copper mineralization beneath previous drillholes BR-03-07 and BR-97-01 that appeared to be increasing with depth. These results, in conjunction with the strong anomalies observed in the geophysical survey, were encouraging and suggested potential for a deep-seated gold-copper porphyry system.

Table 6-2: Selected Results - 2007 Drilling, Brenda Project

| Drill Hole \# | Final Depth (m) | From (m) | To (m) | Core Length (m) | Au (g/t) | Cu (\%) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BR-07-04 | 561.96 | 90.12 | 260.00 | 169.88 | 0.466 | 0.088 |
|  | Including: | 200.00 | 260.00 | 60.00 | 0.592 | 0.111 |
|  |  | 312.00 | 378.00 | 66.00 | 0.310 | 0.038 |
|  |  | 420.08 | 460.00 | 39.92 | 0.418 | 0.628 |
|  |  | 504.00 | 561.96 | 57.96 | 0.707 | 0.119 |
| BR-07-05 | 530.30 | 110.00 | 188.30 | 78.30 | 0.867 | 0.141 |
|  |  | 336.11 | 376.00 | 39.89 | 0.610 | 0.104 |
|  |  | 459.52 | 483.90 | 24.38 | 0.625 | 0.062 |
|  |  | 488.89 | 499.39 | 10.50 | 0.670 | 0.114 |
|  |  |  |  | 546.00 | 0.570 | 0.101 |



Figure 6-2: Location of the 2007 3D IP Survey


Figure 6-3: Chargeability plan, 400m depth, White Pass zone, Brenda Project


Figure 6-4: Chargeability and Resistivity Cross-section (10600 N), White Pass zone, Brenda Project

## Canasil Resources Inc. 2013

The 2013 exploration program consisted of one deep NQ-diameter diamond drillhole designed to test the central White Pass area at a depth not previously assessed. Drillhole BR-13-01 was collared within 2 m of the collar location of 2007 drillhole BR-07-04 and drilled to a depth of 962.6 m (Figure 6-5). The two holes had the same azimuth $\left(054^{\circ}\right)$ and dip $\left(-75^{\circ}\right)$. The entire length of core from drillhole BR-13-01 was logged, but the upper 500m of the hole was not sampled as it was assumed to twin drillhole BR-07-04. The lower section of the hole, from a depth of 500 m to its end at 962.6 m , was sampled and assayed in its entirety. A total of 259 samples (including geochemical blanks and standards and duplicate pairs) were collected and analyzed. Drill assay results of note from drillhole BR-13-01, along with the lower part of drillhole BR-07-04, are listed in Table 6-3. Drillhole sections are shown in Figures 6-6.

Drillhole BR-13-01 encountered primarily phyllic-altered clastic volcanics from a depth of 504.0530.4 m . The volcanics are in faulted contact with quartz monzonite that extend to a depth of 571.2 m . Weak, patchy potassic alteration occurs from 504.0-571.2m carrying scarce quartz stringers and modest quartz stockwork zones with up to $5 \%$ pyrite that coincide with goldcopper mineralization. Grades drop off abruptly at 571.2 m where the quartz monzonite is truncated by a post-mineral monzonite dyke. Similar post- mineral monzonite dykes, typically reddish brown, sparsely propylitic and weak propylitic-altered, dominate the hole to a depth of 719.8m. Weakly mineralized quartz monzonite extends from 719.8-766.6m, but is also truncated by post-mineral monzonite dykes from 766.6-831.0m. Potassic-altered quartz monzonite with quartz-magnetite stringers extends to 854.6 where it is in contact with moderately potassicaltered clastic volcanics. The altered volcanic sequence is again interrupted by post-mineral monzonite dykes at a depth of 896.7 m ; they dominate the hole to its terminus at a depth of 962.6m.

The highest grade intersection in drillhole BR-13-01 returned $0.376 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $0.073 \% \mathrm{Cu}$ over 68 m from $504-572 \mathrm{~m}$. This intersection was, however, significantly lower in average grade than the equivalent section of drillhole BR-07-04 between 504-562m. The deeper part of drillhole BR-13-01 was dominated by post-mineral monzonite dykes that, unless carrying inclusions of older mineralized quartz monzonite or volcanic rock, were effectively barren. Intervals of weakly potassic-altered clastic volcanics and quartz monzonite below a depth of 562 m returned relatively low copper grades and weak gold grades.

The upper part of drillhole BR13-01 twinned drillhole BR-07-04 (total depth of 561.96 m ), enabling for direct comparison with the bottom 62m of BR07-04; the lower part of drillhole BR-13-01 provided new data for depths not previously explored on the Project. The average grade of that interval in BR13-01 was approximately half that returned in BR-07-04. The reasons for
this marked difference are uncertain, but one possibility is that BR-13-01 did not accurately twin BR-07-04 due to deviation of the drillhole at depth.

Drillhole BR-13-01 encountered weakly anomalous gold-copper mineralization below the depth of drillhole BR-07-04. The 2013 drillhole may have passed into a non-mineralized portion of the system and missed flanking mineralization. Drill testing at depth laterally to the area tested by BR-13-01 may be warranted. In order to better define other potential drill targets, deep sensing 3D geophysical surveys, such as the Titan 24 DCIP (Direct Current resistivity and Induced Polarization chargeability) and MT (Magnetotelluric resistivity), should be considered. These surveys have been used effectively at the Copper Mountain and Kemess North projects in British Columbia. A program of approximately 10 line-km of ground-based geophysics and two deep follow-up diamond drillholes totaling 2000m was recommended (Lane, 2013).

Table 6-3: 2013 Drillhole Assay Composites, Brenda Project

| Drillhole ID | From <br> $(\mathbf{m})$ | To (m) | Interval <br> $\mathbf{( m )}$ | $\mathbf{A u}$ <br> $\mathbf{( p p m})$ | $\mathbf{C u}$ <br> $\mathbf{( p p m )}$ | $\mathbf{A g}$ <br> $(\mathbf{p p m})$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BR-13-01 | 504.0 | 572.0 | 68.0 | 0.376 | 735 | 3.38 |
| and | 720.0 | 766.0 | 46.0 | 0.047 | 306 | 1.87 |
| and | 832.0 | 896.0 | 64.0 | 0.034 | 525 | 1.52 |
| and | 930.0 | 942.0 | 12.0 | 0.015 | 442 | 0.87 |
| BR-07-04 | 504.00 | 561.96 | 57.96 | 0.707 | 1190 | - |



Figure 6-5: Drilling of hole BR-13-01, Brenda Project


Figure 6-6: Drillhole BR-13-01, Section 10550 N, White Pass zone, Brenda Project

## 7 GEOLOGICAL SETTING AND MINERALIZATION

### 7.1 INTRODUCTION

Regional bedrock mapping completed by the BC Geological Survey Branch (Diakow et al., 1993; 2005 and Diakow, 2001; 2004) and a regional airborne geophysical program completed by Geoscience BC in 2003 provided an important framework for understanding and interpreting the volcanic-dominated stratigraphy and suites of intrusions in the area.

### 7.2 Regional Geology

The Project is situated in a Mesozoic volcanic arc assemblage within the Stikine terrane along the eastern margin of the Intermontane belt. The Project lies within the Toodoggone-Kemess district, a northwesterly trending belt of Paleozoic to Tertiary sedimentary, volcanic and intrusive rocks. The oldest rocks, or basement, are assigned to the Lower Permian Asitka Group, which are disconformably overlain by Upper Triassic Takla Group, which are in turn unconformably overlain by Toodoggone Formation of the Middle and Lower Jurassic Hazelton Group. To the west these assemblages are overlain by sedimentary rocks of the Upper Cretaceous Sustut Group. The lithologic units comprising the stratigraphic succession are summarized in Table 7-1.

Granitic rocks, mainly of Early Jurassic age, and cogenetic dykes intrude the volcanic successions. Phases of the Black Lake intrusive suite, which include granodiorite, hornblende diorite, pyroxene quartz-diorite, quartz-monzonite and quartz monzodiorite, are important hosts to gold-copper mineralization. Some of these plutonic masses are the Duncan Lake stock (197.3 Ma ), the Sovereign stock ( 202.7 Ma ) and the Maple Leaf pluton (199.6 Ma). The latter hosts the Kemess South gold-copper deposit. The regional distribution of Permian to Upper Cretaceous stratigraphy and intrusions (after Diakow, 2004) are shown in Figure 7-1. A legend for Figure 71 is provided in Figure 7-2.

### 7.3 Structural Setting

The Mesozoic volcanic-dominated assemblages are typically upright, shallow dipping sequences that are cross-cut by high-angle north to northwest trending faults. Significant regional structures are the Finlay-Ingenika and Moosevale fault systems, which bound the eastern margin of the belt. These structures are dextral strike-slip features and are related to the terrain bounding faults between the Intermontane and Omineca belts.

More local to the Brenda Project are the Pillar and Saunders faults, which are north-northwest normal, block fault structures. Low angle thrust faults are present in the district and are interpreted to be Eocene or younger with displacement believed to be towards the northeast.

The district is characterized by three superimposed volcanic arcs whose construction began in the upper Paleozoic. Marine volcanic and sedimentary successions dominated until the lower-
middle Jurassic, when continental, quartz-normative volcanism began with the deposition of the Hazelton Group. The plutonic rocks of the Black Lake intrusive suite are coeval with the Toodoggone Formation and are likely co-magmatic. Block faulting has juxtaposed and exposed panels of varying depth from the magmatic and volcanic systems.

Gold and copper mineralization at the Brenda Project is associated with intense phyllic and potassic alteration that is centered on the White Pass area and has been traced by mapping, geophysical surveying and diamond drilling over a north-south trend for about 1000 m . Argillic and quartz alunite alteration has been traced by mapping and trenching over an additional 750 m to the north and to the south. The strong north trending alteration is thought to be related to a tensional fracture zone splaying off the northwest trending Pillar Fault which, on the Project, separates Takla rocks from Toodoggone rocks. The alteration zone extends further to the north and onto the Pil property where the Pillar Fault is associated with copper and gold mineralization.

Table 7-1: Regional Stratigraphy (after Diakow et al., 2005 and Diakow and Rhodes, 2005)

| Age | Lithostratigraphic Unit | Description |
| :---: | :---: | :---: |
| Upper <br> Cretaceous | Sustut Group | Sustut rocks grade from Brothers Peak Formation conglomerate, sandstone, mudstone with minor tuffaceous units down to the basal Tango Creek Formation polymictic conglomerate, sandstone, mudstone with minor lignite seams. |
| Middle \& Lower Jurassic | Hazelton Group (Toodoggone Formation) | Consists of the Pillar, Graves, Quartz Lake, Saunders, Metsantan and Duncan members. Pillar member is a well-bedded, oxidized sequence dominated by clasts. Quartz Lake member is a conglomerate with finer clastic beds containing finegrained porphyritic basalt clasts and pyroxene grains with minor basalt and rhyodacite flows. Graves member is a quartz-biotite bearing dacitic ash flow tuff deposit locally associated with rhyolitic flow and fallout facies. Saunders member is a dacite ash flow tuff with up to $45 \%$ plagioclase, quartz, hornblende and biotite. Metsantan member is an andesitic flow with $15-25 \%$ plagioclase or a coarse to medium-grained feldspathic sandstone sub-member with moderately well-sorted volcanic conglomerate and minor mudstone. Duncan member is a lapilli tuff interbedded with volcanic epiclasts or a poorly-sorted conglomerate submember marking the base of the Toodoggone formation. |
| Upper Triassic | Takla Group | Sequences of basalt distinguished by abundant plagioclase laths up to 3 cm long. Upper layers generally display smaller plagioclase laths from $2-5 \mathrm{~mm}$ long and up to $7 \%$ pyroxene. Fine to medium-grained porphyritic to aphanitic basalt with subordinate andesite flows containing medium-grained plagioclase and clinopyroxene phenocrysts are common. These flows occur both above and below the coarsely-bladed plagioclase porphyritic basalt. Intervolcanic, internally laminated intervals of siltstone and sandstone, containing angular grains of plagioclase and pyroxene are present; often with limestone lenses. |


| Lower | Units of massive to thickly bedded limestone and chert or dacitic lapilli tuffs. |
| :--- | :--- |
| Permian | Limestone units are locally interbedded with black, limy carbonaceous siltstone <br> and mudstone and locally intruded by basaltic dikes and sills. Lapilli tuff units <br> contain porphyritic andesite and dacitic flows and rare accretionary lapilli tuff. |

### 7.4 Project Geology

The most recent geological bedrock mapping of the Brenda Project (Figure 7-3) was conducted by Diakow et al. (2006) and Panteleyev (2006) and the information presented below is primarily a summary of their findings.

The northeastern two thirds of the Project are underlain by mainly porphyritic volcanic flows of the Metsantan member (Lower Toodoggone Formation). A large zone of hydrothermally altered Metsantan volcanic rocks, associated with porphyritic dyke swarms, punctuate the main area of exploration interest in the northern part of the Project. In the southwestern part of the Project volcanic rocks of the Takla Group are generally in fault contact with the Metsantan units or are intruded by a granitic pluton. The most westerly part of the Project is underlain by mainly ash flows of the Duncan member, the basal unit of the Toodoggone Formation.

### 7.4.1 Lithologic Units

The main lithologic map units present in map area, after Panteleyev (2006), are:

## Volcanic Rocks

Pyroxene basalts of the Late Triassic Takla Group are generally porphyritic, coarse-grained augite phyric basalt flows that form dark green, well-jointed massive outcrops. Most flows contain epidote after calcic plagioclase and chlorite after mafic minerals. Rare amygdules contain epidote, quartz and chlorite.

Porphyritic volcanic flows ('latite') of the Metsantan Member (lower Toodoggone Formation of the Early Jurassic Hazelton Group) are the predominant volcanic unit in the map area. They contain 20-30\% pink hematitic and albitized plagioclase phenocrysts accompanied by strongly chloritized hornblende (and possibly pyroxene), lesser biotite, rare quartz and rare, but pronounced, vitreous euhedral orthoclase crystals up to one centimetre in size. Outcrops commonly display pale pink phenocrysts in a pale to darker grey-green matrix, commonly with up to 5\% epidote as discrete grains and fracture fillings. Argon-argon dating of typical flows from the southern part of the Project by Diakow et al. (2006) produced an apparent age of 194.1 $\pm 2.0 \mathrm{Ma}$. Dacitic ash flows occur locally as thin flow units in the Metsantan porphyry flow successions. The ash flows are pink, pale weathering quartz-rich crystal ash tuffs.

Subordinate grey-green dacitic crystal ash tuffs of the Duncan Member are characterized by pale brown-weathering plagioclase-phyric cognate fragments in a similar crystal ash matrix. Argon-argon dating on non-welded crystal-rich ash flow tuffs by Diakow et al. (2006) produced an apparent age of $198.9 \pm 1.3 \mathrm{Ma}$.

## Dykes

Three types of dykes are recognized on the Project. They are generally a few metres to tens of metres wide. From oldest to youngest they are:

Quartz monzonite: equigranular to weakly porphyritic, medium grained 'crowded' texture with $40-50 \%$ equant plagioclase from $1-2 \mathrm{~mm}$ in size. Interstitial fine-grained minerals are hornblende, biotite and quartz. Alteration is primarily weakly chloritized mafic minerals and turbid plagioclase giving rise to chalky-weathering cream to buff-coloured feldspars. The dykes contain minor pyrite, have pale phyllic (illite/sericite) alteration envelopes and contain weakly anomalous gold values. They appear to be syn- to late mineralization intrusions. Three of these dykes trend northwesterly along the northern slope of the White Pass ridge alteration zone.

Hornblende feldspar porphyry (monzonite/quartz monzonite): typically pink to reddish-orange matrix when oxidized with equant pink, hematitic and albitized plagioclase phenocrysts. Chloritized hornblende and rare fine-grained quartz grains and possibly biotite are present. Epidote occurs as a characteristic alteration product, mainly as disseminated grains and patches, and less commonly in veinlets and fracture fillings. These are the most common type of dyke on the Project. In the White Pass/Camp Creek area the dykes trend dominantly northwest- to northnorthwesterly.

Syenite/monzonite: 15-20\% equant, pale grey to cream plagioclase phenocrysts up to 3 mm in size occur in a brick-red microcrystalline matrix. Thin laths of hornblende up to 2 mm in length and fine-grained biotite comprise up to $8 \%$ of the rock. These rocks form coarse blocky jointed, resistant outcrops. An argon-argon date from a porphyritic monzonite dyke of apparently this type, from eastern White Pass ridge, is reported to have an age of $187.3 \pm 1.2 \mathrm{Ma}$ (Diakow et al., 2006).

Minor dyke types include very fine granular to weakly amygdaloidal basalt dykes, rarely more than one metre wide. A few dykes of biotite-quartz-potassium feldpsar porphyry are present and may be genetically associated with dacitic ash flows.

## Stocks

One large stock and one smaller stock of pale grey to pink, relatively unaltered looking quartz monzonite/granodiorite are composed of medium- to coarse- grained feldspars and quartz with biotite and hornblende. They are considered to be part of the Black Lake intrusive suite.

### 7.4.2 Structure

Regional scale faults in the central Toodoggone-Kemess district are typically north- to northwesterly-trending (Diakow et al., 2006). The areas between these faults are commonly cut by westerly-trending structures that are consistent with block faulting in an extensional setting.

More local to the Project are the Pillar and Saunders faults, which are north-northwest trending normal, block fault structures. On the Project, the Pillar Fault separates Takla volcanic rocks from those of the younger Metsantan succession. A well-developed 2.5 km north-trending argillic-phyllic-potassic alteration zone, with associated gold and copper mineralization, is thought to be related to a tensional fracture zone splaying off from the northwest trending Pillar fault.

Low angle thrust faults are also present in the district and are interpreted to be Eocene or younger with displacement believed to be towards the northeast.

A number of smaller faults are defined by narrow zones of sheared, shattered and strongly clayaltered rocks. Basalt dykes have been injected into some of these structures which typically dip $50-65^{\circ} \mathrm{W}$.

The Metsantan volcanic succession rarely displays bedding. A single bedding measurement near Jock Lake indicates a southwesterly dip of about 45 degrees, and is compatible with the 20-45 degree dips observed throughout the Toodoggone-Kemess district. Dykes cutting Metsantan rocks on the Project are generally steeply dipping and most strike north- to north-northwesterly. Dykes in Takla volcanic rocks in the southwestern part of the Project appear to trend predominantly to the northeast.



Figure 7-2: Legend for Figure 7-1


### 7.4.3 Alteration and Mineralization

## Alteration

In the northern part of the Brenda Project a widespread propylitic alteration zone consisting of illite, chlorite, epidote, carbonate and gypsum with disseminated pyrite, is surrounded and locally overprinted, by a distal zone with fracture fillings containing pink zeolite (laumontite) and carbonate minerals.

Propylitic alteration of the Metsantan flows and dykes has left the rocks with a characteristic spotted or speckled appearance. The pale grey-green matrix contrasts with subhedral grains, small irregular patches and fracture fillings of pistachio-green epidote and phenocrysts of grey to pink plagioclase. Chlorite with minor epidote has typically replaced mafic minerals. Veins of gypsum are common. Fracture fillings and veinlets containing calcite, pink zeolite (laumonite) and, rarely, pale purple anhydrite, also occur.

In the central White Pass area of the Project, a north-trending argillic-phyllic-potassic alteration zone, associated with gold and copper mineralization, occurs over a distance of about 2.5 km . It is dominated by argillic alteration with irregular flat lying areas of quartz alunite along dyke margins. Drilling beneath the north and south extremities of the argillic-quartz alunite alteration has intersected phyllic alteration suggesting that the argillic alteration is supergene. Drilling under the central portion of the argillic alteration at the top of White Pass has intersected a vertical central zone of potassic alteration averaging 300 m thick. It is enveloped by phyllic alteration that averages 150 m thick. This alteration is cut by post-mineral dykes.

The most extensive development of the quartz-alunite-aluminosilicate alteration forms a white, sub-horizontal zone that caps the phyllic-potassic altered gold-copper zone. The ridge capping is comprised predominantly of massive fine-grained quartz-dickite-alunite with inclusions of foliated breccia near the outer margins.

## Mineralization

Low sulphidation epithermal gold-silver mineralization and gold-copper porphyry mineralization are recognized on the Brenda Project. The two styles of mineralization are distinct, but are likely genetically-related. The Takla and EB zones are located in the headwaters of Red Creek, the Creek zone is located in the valley bottom immediately south of Jock Creek, and the White Pass zone is situated on a high-standing ridge about 1.5 km south of Jock Creek.

## Takla Zone

The Takla zone is characterized by quartz-chalcedony breccias, quartz veinlets and zones of silicification within andesitic volcanic rocks of the Takla Group. The area measures at least 200m long by $40-60 \mathrm{~m}$ wide. The veins consist of colorless to pale grey quartz and chalcedony that strike northeast and east with steep variable dips. Banding and cockscomb textures are common. The veins contain from 1-10\% euhedral pyrite. Minor amounts of chalcopyrite, galena and sphalerite occur in some veins. Late-stage calcite occurs in the centre of some veins. Epidote occurs as fracture fillings peripheral to the quartz-chalcedony breccia zones (Weishaupt, 1987).

At the Takla showing, six select grab samples collected along a 14 m width returned values ranging from 0.34 to $1.52 \mathrm{oz} /$ ton Au and 1.13 to $37.09 \mathrm{oz} /$ ton Ag (Weishaupt (1989). These values coincide with a resistivity anomaly which is more than 490 m in length. The highest grade intersection from 1988 drilling of the zone returned $0.710 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 9.50 \mathrm{~g} / \mathrm{t}$ Ag over 1.37 m in drillhole Tak-88-8 (Weishaupt, 1989).

No work has been done on the Takla zone since 1988. The Takla zone was not visited by the writer during his field visit.

EB Zone
The EB zone consists of a large quartz stockwork and breccia zone within pyritic, augite phyric grey-green andesite of the Takla Group. The zone is oriented $008 / 68-82^{\circ} \mathrm{E}$ and has been exposed by trenching for approximately 24 m by $4-6 \mathrm{~m}$ (Figure $7-4$ ). Assay results from 1 m chip samples taken across the strike of the zone returned values that ranged from 99-4920 ppb Au and from 3.7-138.2 ppm Ag (Weishaupt, 1991). Seven holes drilled on the zone in 1992 failed to intersect encouraging grades of mineralization. The highest assay value was $0.675 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $6.5 \mathrm{~g} / \mathrm{t}$ Ag over 1 m in drillhole EB-92-04 (Weishaupt, 1993). No work has been done on the zone since 1992.

## Creek Zone

The Creek zone is centered near the Brenda camp (Figure 7-5), and measures approximately 1000 m northwest by 300 m northeast. The zone is underlain by silicified green andesite to dacite crystal tuffs of the Toodoggone Formation. They are cut by quartz fractures and veinlets carrying variable amounts of pyrite, sphalerite, galena and chalcopyrite. In 1986, chip samples from hand-dug trenches and core samples from short 'winkie' test holes returned values ranging from $1-640 \mathrm{ppb}$ Au and $0.4-135.5 \mathrm{ppm}$ Ag. In 1988, results from limited chip sampling in machineexcavated trenches included a 6 m averaging $0.187 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 0.169 \% \mathrm{Cu}, 6.9 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 37 \mathrm{ppm} \mathrm{Mo}$, $0.09 \% \mathrm{~Pb}$ and $1.25 \% \mathrm{Zn}$. Four 1988 drillholes returned background to weakly anomalous results for gold, copper and silver. In 1992, Canasil drilled two holes on the Creek zone; drillhole CR 92-

01 contained an interval (from 5.2-7.2m) that assayed $0.359 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 0.044 \% \mathrm{Cu}, 26.8 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$, $0.29 \% \mathrm{~Pb}$ and $0.66 \% \mathrm{Zn}$ (Weishaupt, 1993). Three additional holes drilled on a potential eastern extension of the zone in 1995-1996 did not produce encouraging results.

The relatively high grades of zinc and lead are characteristic of the Creek zone, while silver and molybdenum values in are not insignificant. No work has been done on the zone since 1996. The Creek zone was not visited by the writer during his field visit.


Figure 7-4: Trench exposing mineralization, EB zone, Brenda Project


Figure 7-5: Looking northwest toward the Creek zone, camp and core storage areas, with area of argillic alteration in foreground, Brenda Project

## White Pass Zone

The White Pass zone is marked by a conspicuous colour anomaly (Figure 7-6) and is characterized by a central zone of strongly potassic-altered latite with narrow quartz-magnetite stockworks. Gold-copper mineralization has been defined over a width of $300-400 \mathrm{~m}$. The potassic-altered zone is capped by a conspicuous zone of argillic alteration and surrounded by an intense phyllic (quartz-sericite-pyrite) alteration that averages 100-150m in width and carries weak gold-copper mineralization. The potassic-altered gold-copper zone has been traced by drilling over a strike length of 500 m and to a depth of 560 m . The deep mineralization is open along strike and to depth. A 3D-IP geophysical survey completed over the area suggests that the mineralization extends for at least 1000 m along strike. Sulphide mineralization also occurs beneath and surrounding the large quartz-alunite cap located 1000 m to the east.

The White Pass zone is cut by a swarm of eight or more, $8-45 \mathrm{~m}$ thick post-mineral monzonite dykes with an average orientation of $132 / 77^{\circ} \mathrm{SW}$. The dykes have bleached and altered the potassic and phyllic-altered areas to a pale green siliceous sericite-pyrite rock, and lowered the grades near the dyke contacts. Locally the post mineral dykes have assimilated sections of the potassic quartz-magnetite stockwork.

A bedrock geology and alteration plan map of the White Pass zone (after Nordin and Lane, 2008 and Panteleyev, 2006) is shown in Figure 7-7.

In the potassic alteration zone, mineralization consists mainly of well-developed 1-5mm quartz $\pm$ magnetite $\pm$ pyrite $\pm$ chalcopyrite veinlets, locally with epidote, that have formed crosscutting stockworks (Figure 7-8). Veinlets are not as prominent in propylitic and phyllic alteration zones, but do contain pyrite and minor chalcopyrite as fine-grained disseminations and clots. Veinlets of gypsum are widespread in both propylitic and argillic alteration zones. Anhydrite occurs in short veins and irregular dilational openings, especially in the phyllic alteration zone.

In the phyllic alteration zones, sulphide mineralization consists mainly of widespread 2-3\% disseminated pyrite, but can exceed $10 \%$ when present as grains in quartz+/-magnetite veinlets, on fractures and as patchy, fine-grained replacements. Chalcopyrite is erratically distributed and occurs in small aggregates and in quartz+/-magnetite veinlets. Molybdenite was noted as rare small grains in quartz veinlets. Dark brown to black sphalerite and lesser galena occur as disseminations and as fracture fillings primarily in a zone 500 m wide that encompasses the phyllic and propylitic alteration zones, resulting in a broad zinc-lead geochemical halo.

Zones of gold and copper mineralization are dissected and diluted by the barren, younger porphyritic monzonite dykes resulting in has been modeled as alternating intervals, or panels of well-mineralized volcanic rock separated by panels of post-mineral, unmineralized dyke rock. Select drillhole intersections from the White Pass zone are shown in Table 7-2.


Figure 7-6: Looking northeast at the White Pass zone, Brenda Project



Figure 7-8: Quartz-magnetite-pyrite-epidote veinlets in potassic-altered latite (top: hole BR-03$07 @ 165.95 \mathrm{~m}$ ) and quartz-magnetite $\pm$ pyrite stockwork in hematite-dusted, weakly potassic-altered (right) to phyllic-altered (right) latite (bottom; hole BR-07-04@226.00m)

Table 7-2: Select drillhole intersections, White Pass zone, Brenda Project

| Drillhole ID | From (m) | To <br> $\mathbf{( m )}$ | Interval (m) | Au (g/t) | Cu (\%) | Ag (g/t) |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: |
| BR-92-04 | 16.40 | 43.00 | 26.60 | 0.915 | 0.028 | 3.0 |
| BR-93-01 | 9.13 | 57.00 | 47.87 | 1.100 | 0.130 | 4.8 |
| BR-93-03 | 12.20 | 121.00 | 108.80 | 0.480 | 0.144 | 1.0 |
| BR-95-03 | 20.40 | 61.90 | 41.50 | 0.770 | 0.110 | 3.3 |
| BR-96-03 | 15.54 | 75.89 | 60.35 | 0.605 | 0.123 | - |
| BR-96-07 | 7.30 | 69.80 | 62.50 | 0.832 | 0.139 | - |
| BR-97-02 | 17.35 | 122.83 | 105.48 | 0.708 | 0.083 | 2.2 |
| BR-03-06 | 53.30 | 133.20 | 79.90 | 0.375 | 0.111 | - |
| BR-03-07 | 95.50 | 262.10 | 166.60 | 0.565 | 0.079 | - |
| BR-04-10 | 91.40 | 251.00 | 159.60 | 0.411 | 0.038 | - |
| BR-04-14 | 343.10 | 448.00 | 104.90 | 0.399 | 0.031 | - |
| BR-07-04 | 90.12 | 260.00 | 169.88 | 0.466 | 0.088 | - |
| and | 312.00 | 378.00 | 66.00 | 0.310 | 0.038 | - |
| and | 420.08 | 460.00 | 39.92 | 0.418 | 0.080 | - |
| and | 504.00 | 561.96 | 57.96 | 0.707 | 0.119 | - |
| BR-13-01 | 504.00 | 572.00 | 68.00 | 0.376 | 0.074 | 3.4 |

## 8 DEPOSIT TYPES

In northern British Columbia porphyry copper deposits occur in the Quesnel and Stikine terrains, and in post-accretionary settings. They are classified into two principal types: Alkalic and CalcAlkalic, based on composition of host rocks, metal ratios, alteration types and presence or absence of quartz stockworks. The Brenda Project hosts mineralization that is consistent with the Calc-Alkalic porphyry deposit type, one in which gold predominates over copper, and silver and molybdenum may be important.

Porphyry copper deposits are typically high tonnage (greater than 100 million tonnes) and low to medium grade $(0.3-2.0 \% \mathrm{Cu})$. They are the world's most important source of copper, accounting for more than $60 \%$ of the annual world copper production and about $65 \%$ of known copper resources. Porphyry copper deposits are an important source of other metals, most notably molybdenum, gold and silver.

Calc-Alkalic porphyry deposits consist of mineralization that is relatively evenly distributed throughout large volumes of rock. These deposits are typically formed within a few kilometres of the surface from hydrothermal fluids in the range of $<150-300^{\circ} \mathrm{C}$. Mineralization is spatially, temporally and genetically associated with hydrothermal alteration of the host rock intrusions and wall rocks. Intrusions range from coarse-grained phaneritic to porphyritic stocks, batholiths and dike swarms. Compositions range from quartz diorite to granodiorite and quartz monzonite, and can include multiple emplacement of successive intrusive phases and a wide variety of breccias. A generalized model for a classic Calc-Alkalic porphyry copper deposit is shown in Figure 8-1.

Alteration can consist of a central and early formed potassic zone, that commonly coincides with ore, that grades outward into an extensive, marginal propylitic alteration halo. These older alteration assemblages can be overprinted by phyllic (sericite+/-pyrite) alteration (Figure 8-2). Mineralization consists of stockworks of quartz veinlets, quartz veins, closely spaced fractures and breccias containing pyrite and chalcopyrite with lesser molybdenite and bornite; disseminated sulphide minerals are present, but generally in subordinate amounts.

Porphyry copper deposits commonly are centered on small cylindrical porphyry stocks or swarms of dikes (Panteleyev, 1995; Sillitoe, 2010). However, the geometry and dimensions of porphyry copper deposits vary greatly because of multiple factors including post-ore intrusions, a range of types of host rocks that influence deposit morphology, amounts of hypogene and supergene ore each of which has different configurations, and erosion and post-ore deformation including faulting and tilting. Deposit geometries are also determined by economic factors that outline ore zones within larger areas of low-grade, concentrically zoned mineralization.

The vertical extent of hypogene mineralization in porphyry copper deposits is generally less than or equal to 1 to 1.5 km (Sillitoe, 2010). The predominant hypogene copper sulphide minerals are chalcopyrite, which occurs in nearly all deposits, and bornite, which occurs in about $75 \%$ of deposits. Molybdenite, the only molybdenum mineral of significance, occurs in about $70 \%$ of deposits. Gold and silver, as by-products, occur in about 30\% of deposits.

In porphyry copper deposits, the development of supergene, or secondary copper, mineralization occurs when low-pH groundwater dissolves copper from hypogene copper minerals in an oxidizing environment, and transports and re-precipitates the copper in the form of oxides, carbonates, silicates and or sulphides in a stable, low-temperature, reducing environment. In British Columbia, likely as a result of glaciation, most exposed porphyry deposits lack a supergene zone.


Figure 8-1: Generalized model for a telescoped porphyry copper system (after Sillitoe, 2010).


Figure 8-2: Generalized alteration-mineralization zoning for a telescoped porphyry copper system (after Sillitoe, 2010).

## 9 EXPLORATION

### 9.1 Current Exploration

Canasil is not currently conducting exploration on the Brenda Project.

### 9.2 Previous Exploration, Data Compilation and Modelling

Previous exploration on the Project consisted of prospecting, bedrock mapping, soil and rock geochemical sampling, aerial and ground-based geophysical surveys, trenching and diamond drilling. This work identified epithermal gold-silver prospects and porphyry gold-copper prospects. The exploration work was completed by a number of companies whose crews were under the direct supervision of professional geologists.

Canasil has compiled soil geochemical data for 1190 grid-based samples collected on the Project. Colour-contoured plots for gold and for copper are shown in Figures 9-1 and 9-2, respectively. Each plot shows gold and/or copper anomalies that coincide with the zones explored.

Trenching and test pitting were important in the early history of the Project allowing workers to examine fresh bedrock beneath either glacial overburden, talus, ferricrete or pervasively-altered rock, thereby confirming the source of some of the surface anomalies.

Geophysical surveys have been completed over parts of the Project, but do not penetrate as deeply as is required by today's exploration targeting of deeply buried porphyry systems. The effective depth of the 2007 IP survey was about 400 m . Select plan and sections from IP surveys completed over the White Pass zone are shown in Section 6.

Drilling on the Project has taken place intermittently from 1988-2013, totaling 12,067m in 65 holes. Canasil has compiled all of the drillhole data into a single database that has been reviewed by the writer. Since 1993, drilling has focused primarily on the White Pass zone, a significant porphyry gold-copper target. Table 9-1 lists the amount of drilling each zone has received.

## Modelling of the White Pass Zone

A geological model for the White Pass zone of the Brenda Project was created by Barnes (2017) after review of drill core assay data and examination of drill core photos for the zone. A summary of his findings are presented below.

Some minor conflicting geological logging was noted and the codes for these units were revised. This included modifying the labeling of volcanic stratigraphy from Takla Group to the younger Toodoggone Formation of the Hazelton Group (which does contain minor basalt flows),
and distinguishing weakly altered and mineralized Black Lake intrusive rocks from postmineralization monzonite dykes, which were often originally logged as the same unit.

Table 9-1: Drilling by zone, Brenda Project

| Zone | Years Drilled | Holes | Metres |
| :--- | :---: | :---: | ---: |
| Creek | $1988,1992,1995,1996$ | 9 | 923.58 |
| EB | 1992 | 7 | 316.65 |
| Takla | 1988 | 8 | 792.68 |
| White Pass | $1992-2013$ | 41 | $10,033.76$ |

The resulting reinterpretation outlined eight post-mineral dykes (PMD) oriented approximately $135^{\circ} / 75^{\circ} \mathrm{S}$ (Figure 9-3). The PMD are pervasively hematite-stained, lack quartz veining and are devoid of mineralization. The weakly mineralized Black Lake intrusive rocks contain sparse quartz $\pm$ magnetite veins with anomalous to weak gold and copper values. These units occur on the edge and wedges within some of the PMD (Figure 9-4). The country rock enclosing the PMD and the weakly mineralized Black Lake intrusive rock consists predominantly of volcanic stratigraphy of the Toodoggone Formation.

White Pass zone mineralization occurs mainly within intermediate volcanic rocks of the Toodoggone Formation. Mineralization is associated with strong phyllic and weak to moderate potassic alteration. Some mineralized zones appear to have increased sericite and chlorite alteration with increased pyrite, while other zones show increased K-feldspar, possible biotite and chlorite alteration with minor quartz veining. The mineralization is cut by the series of PMD resulting in panels of mineralized rock separated by panels of barren rock. The Mineralized Zone (MZ) is characterized by drillhole intersections of $>0.1 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ (Figure 9-5) and Higher Grade Zones (HGZ) are characterized by drillhole intersections of $>0.4 \mathrm{~g} / \mathrm{t}$ Au (Figure 9-6).

Based on drillhole intervals and weighted averages, the average grades of the modelled $M Z$ are $0.410 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 0.066 \% \mathrm{Cu}$ and $2.74 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$, and the average grades of the modelled HGZ are 0.659 $\mathrm{g} / \mathrm{t} \mathrm{Au}, 0.092 \% \mathrm{Cu}$ and $3.32 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$. Three-dimensional shapes for the MZ and HGZ were generated in similar fashion to that of grade shell interpolation; some mineralized intervals cross PMD intervals if mineralization occurs on both sides of the PMD. The trend of the mineralized zone shape created from those intervals follows an azimuth of $315^{\circ}$ and dips $30^{\circ}$ NE (Figures 9-7 to 9-10. This orientation could be due to faults running northwest-southeast causing fault blocks to drop down to the northeast. This is evident in the shape for the HGZ as it appears to step down to the northeast. The shape for the MZ has approximate dimensions of 1000 m by 400 m and is from $100-600 \mathrm{~m}$ thick. The HGZ has estimated dimensions of 200 m by 300 m and is 150 m thick.




Figure 9-3: View of drillholes showing updated lithological codes looking north at a dip of $45^{\circ}$. Blue are Hazelton Group volcanics, orange are PMD, pink are weakly mineralized Black Lake Intrusions, and grey are Cretaceous basalts.


Figure 9-4: PMD model in plan view showing eight sheeted dykes oriented approximately $135^{\circ} / 75^{\circ} \mathrm{N}$.


Figure 9-5: Down hole traces showing MZ (>0.1 g/t Au) intersections (view to the north)


Figure 9-6: Down hole traces showing HGZ (>0.4 g/t Au) intersections (view to the north)


Figure 9-7: Plan view of the $M Z$ shape ( $>0.1 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ ) cut off to the northeast by a PMD and compounded by a lack of drilling


Figure 9-8: MZ (>0.1 g/t Au) shape cut off to the northeast by PMD and compounded by a lack of drilling (view is at an azimuth of $315^{\circ}$ )


Figure 9-9: Plan view of the HGZ (>0.4 $\mathrm{g} / \mathrm{t} \mathrm{Au}$ ) shapes cut off to the northeast by PMD and compounded by a lack of drilling


Figure 9-10: HGZ (>0.4 g/t Au) shapes cut off to the northeast by PMD and compounded by a lack of drilling (view at azimuth of $315^{\circ}$ )

## 10 DRILLING

### 10.1 Current Drilling

There is no current drilling on the Project. Previous drilling is summarized.

### 10.2 Previous Drilling

A total of 65 surface exploration diamond drillholes with an aggregate length of 12,067m have been completed on the Project. The holes were drilled from 1988 to 2013 by various operators and tested five different targets on the Project. Near-complete technical data has been compiled for the majority of these holes. The location of all holes drilled on the Project are shown on Figure 10-1. Table 10-1 lists drillhole location and orientation data by year, operator and target. Select diamond drilling results are provided in Section 7 of this report.

Drill core is stored near the exploration base camp on Project tenure. It is either in metal racks or is cross-stacked and covered by tarps (Figure 10-2).

Table 10-1: Summary of Surface Exploration Drilling, Brenda Project

| Zone ID | Easting | Northing | Elev (m) | Azimuth | Dip | Depth (m) |
| :---: | ---: | :---: | :---: | :---: | ---: | ---: |
| Takla-EB | 626280 | 6346440 | 1720 | 138 | -45 | 94.51 |
| Takla-EB | 626275 | 6346825 | 1645 | 246 | -43 | 102.74 |
| Takla-EB | 626225 | 6346780 | 1650 | 246 | -45 | 50.92 |
| Takla-EB | 626150 | 6346900 | 1645 | 232 | -45 | 90.55 |
| Takla-EB | 626325 | 6346800 | 1670 | 246 | -45 | 92.68 |
| Takla-EB | 626125 | 6346820 | 1670 | 112 | -45 | 100.92 |
| Takla-EB | 626030 | 6346430 | 1715 | 202 | -48 | 127.13 |
| Takla-EB | 626030 | 6346430 | 1715 | 202 | -58 | 133.23 |
| Creek | 628150 | 6349300 | 1190 | 210 | -44 | 130.18 |
| Creek | 628120 | 6349400 | 1180 | 210 | -45 | 96.65 |
| Creek | 628100 | 6349500 | 1180 | 210 | -45 | 102.74 |
| Creek | 628550 | 6349330 | 1180 | 210 | -45 | 96.65 |
| Creek | 628300 | 6349200 | 1210 | 35 | -50 | 66.15 |
| Creek | 628300 | 6349200 | 1210 | 35 | -89 | 67.60 |
| White Pass | 628467 | 6347810 | 1565 | 55 | -62 | 63.10 |
| White Pass | 628426 | 6347779 | 1555 | 55 | -60 | 90.52 |
| White Pass | 628426 | 6347779 | 1555 | 0 | -90 | 66.10 |
| White Pass | 628551 | 6347752 | 1550 | 55 | -75 | 50.90 |
| EB | 626715 | 6346800 | 1647 | 282 | -60 | 38.70 |
| EB | 626715 | 6346800 | 1647 | 282 | -75 | 46.00 |
| EB | 626705 | 6346750 | 1647 | 282 | -60 | 37.50 |
| EB | 626705 | 6346750 | 1647 | 282 | -75 | 47.85 |
| EB | 626695 | 6346700 | 1648 | 282 | -60 | 50.90 |
| EB | 626725 | 6346850 | 1646 | 282 | -60 | 57.00 |


| Zone ID | Easting | Northing | Elev (m) | Azimuth | Dip | Depth (m) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| EB | 626735 | 6346900 | 1645 | 282 | -45 | 38.70 |
| White Pass | 628415 | 6347766 | 1551 | 55 | -74 | 331.04 |
| White Pass | 628531 | 6347735 | 1552 | 55 | -62 | 270.36 |
| White Pass | 628437 | 6347787 | 1550 | 235 | -65 | 143.26 |
| White Pass | 628269 | 6347843 | 1550 | 55 | -45 | 212.45 |
| Creek (East) | 630300 | 6348832 | 1285 | 235 | -50 | 136.24 |
| Creek (East) | 630300 | 6348832 | 1285 | 0 | -90 | 96.62 |
| White Pass | 628390 | 6347747 | 1550 | 235 | -65 | 145.38 |
| White Pass | 628269 | 6347843 | 1550 | 55 | -65 | 99.66 |
| Creek (East) | 630178 | 6348789 | 1280 | 200 | -50 | 130.75 |
| White Pass | 628464 | 6347751 | 1551 | 235 | -65 | 131.97 |
| White Pass | 628392 | 6347747 | 1548 | 55 | -65 | 75.89 |
| White Pass | 628371 | 6347731 | 1548 | 235 | -65 | 41.75 |
| White Pass | 628632 | 6347652 | 1530 | 55 | -60 | 146.60 |
| White Pass | 628439 | 6347730 | 1549 | 235 | -65 | 80.16 |
| White Pass | 628439 | 6347730 | 1549 | 55 | -65 | 99.66 |
| White Pass | 628392 | 6347824 | 1555 | 55 | -60 | 172.82 |
| White Pass | 628361 | 6347789 | 1555 | 235 | -65 | 137.46 |
| White Pass | 628341 | 6347847 | 1565 | 55 | -65 | 130.15 |
| White Pass | 628385 | 6347809 | 1575 | 55 | -60 | 133.20 |
| White Pass | 628674 | 6347767 | 1550 | 55 | -60 | 160.63 |
| White Pass | 628169 | 6348216 | 1415 | 235 | -70 | 436.80 |
| White Pass | 629285 | 6348586 | 1370 | 235 | -70 | 420.60 |
| White Pass | 627839 | 6348103 | 1348 | 51 | -60 | 346.90 |
| White Pass | 628074 | 6347826 | 1472 | 54 | -65 | 445.00 |
| White Pass | 628290 | 6347670 | 1487 | 55 | -70 | 292.60 |
| White Pass | 628500 | 6347630 | 1510 | 55 | -70 | 374.90 |
| White Pass | 628507 | 6347839 | 1595 | 55 | -70 | 271.90 |
| White Pass | 628258 | 6348361 | 1403 | 55 | -70 | 381.00 |
| White Pass | 630440 | 6348055 | 1625 | 235 | -45 | 163.70 |
| White Pass | 628490 | 6347906 | 1620 | 69 | -70 | 353.60 |
| White Pass | 628414 | 6347504 | 1460 | 58 | -60 | 128.00 |
| White Pass | 628602 | 6347518 | 1475 | 73 | -76 | 225.60 |
| White Pass | 628680 | 6347850 | 1620 | 55 | -60 | 287.40 |
| White Pass | 628426 | 6348006 | 1550 | 65 | -70 | 451.10 |
| White Pass | 628689 | 6348018 | 1655 | 50 | -70 | 144.78 |
| White Pass | 628888 | 6348130 | 1642 | 110 | -60 | 170.99 |
| White Pass | 629705 | 6348118 | 1606 | 53 | -75 | 300.84 |
| White Pass | 628527 | 6347850 | 1594 | 54 | -75 | 561.96 |
| White Pass | 628399 | 6347821 | 1582 | 54 | -60 | 530.43 |
| White Pass | 628527 | 6347850 | 1594 | 54 | -75 | 962.60 |
| Total metres: |  |  |  |  |  | 12,066.67 |




Figure 10-2: Core storage area, Brenda Project

## 11 SAMPLE PREPARATION, ANALYSES AND SECURITY

### 11.1 SoIL SAMPLING

A total of 1190 grid-based soil samples, collected by various operators from 1980-1993, have been compiled and plotted by Canasil. Descriptions of soil sample collection techniques are provided in summary reports for each year the work was conducted. Soil samples were generally collected from the ' $B$ ' horizon on $25-50 \mathrm{~m}$ spacings, but ' $C^{\prime}$ horizon material was sampled in areas that lacked 'B' horizon soil. Sampling procedures were consistent with industry standards for the years in which the work was completed. The soil sampling programs were conducted under the guidance of seasoned, professional geologists.

Two laboratories were used for all of the historical soil geochemical analysis and assaying: Acme Analytical Laboratories Ltd. (now Bureau Veritas S.A.) and ALS Canada Ltd. (under subsidiaries ALS Chemex and ALS Minerals). Both are well-known, reputable laboratories that maintained high professional accreditation standards during the years in which they analyzed samples from the Project. In earlier sampling programs, soils were analyzed for a minimum of copper, lead, zinc, silver and gold, but later sampling programs included a larger multi-element suite that consisted of 30 or more elements. Gold was determined by Atomic Absorption (AA), while the remaining elements were analyzed by Inductively Coupled Plasma (ICP) techniques.

Certificates of Analysis are available for most of the soil sampling programs conducted on the Project and were reviewed by the writer. There is no reference to the use of blind certified reference standards, duplicates or blanks, other than those inserted by the lab itself. There is no reference to the use of a check-assay procedure.

### 11.2 Rock SAMPLing

An unknown number of surface rock samples have been collected on the Project. Rock samples have been grabs from float, outcrop, trench and test pits. Some trenches were chip and/or channel sampled with typical sample lengths of $1 m$; they are not discussed further.

### 11.3 Diamond Drilling and Core Sampling

Diamond drilling has occurred on the Brenda Project periodically since 1988. The historical drill core sample preparation, sampling procedures, and lab preparation and analytical methods utilized during these programs are generally well recorded in the literature. Sample preparation and analytical methods have varied relatively little from program to program, but QAQC standards improved from the early days of drilling. For the most part NQ and HQ-diameter core has been split or sawn and sampled on 2 m to 3 m intervals. Certificates of Analysis, which provide a brief summary of the different analytical methods used, are available for all of the drill core sampling programs conducted on the Project and were reviewed by the writer.

Data for diamond drilling has been captured and compiled by Canasil; this work is summarized by year in Table 11-1.

Table 11-1: Drill Campaigns by Year, Brenda Project

| Year | Company | Holes | Metres | Samples |
| :---: | :--- | :---: | ---: | :---: |
| 1988 | Cyprus Gold (Canada) Ltd. | 12 | $1,218.90$ | 354 |
| 1992 | Canasil Resources Inc. | 13 | 721.02 | 72 |
| 1993 | Romulus Resources Ltd. | 4 | 957.11 | 393 |
| 1995 | Canasil Resources Inc. | 4 | 477.90 | 27 |
| 1996 | Canasil Resources Inc. | 7 | 706.78 | 126 |
| 1997 | Canasil Resources Inc. | 5 | 734.26 | 98 |
| 2002 | Northgate Exploration Ltd. | 4 | $1,649.30$ | 862 |
| 2003 | Northgate Exploration Ltd. | 5 | $1,484.10$ | 674 |
| 2004 | Northgate Minerals Corp. | 5 | $1,445.70$ | 685 |
| 2007 | Canasil Resources Inc. | 5 | $1,709.00$ | 605 |
| 2013 | Canasil Resources Inc. | 1 | 962.60 | 231 |
| Total |  | $\mathbf{6 5}$ | $\mathbf{1 2 , 0 6 6 . 6 7}$ | $\mathbf{4 , 1 2 7}$ |

### 11.4 Core Sample Preparation and Analyses

## 1988 Program

Core logging and sampling for the 1988 drilling program was conducted by Cyprus Gold Canada Inc. (Cyprus) personnel. All drillholes were described in geological logs that showed sample intervals, generally $1-2 \mathrm{~m}$ in length, with corresponding sample identification number and results. There is no description of core logging or sampling methods used. A total of 354 core samples were collected and shipped to Acme Analytical Laboratories Ltd. in Vancouver, BC, for analysis. There is no reference to the use of blind certified reference standards, duplicates or blanks other than those inserted by the lab. There is no reference to the use of a check-assay procedure.

Core samples were crushed to -5 mm and a 23 gm split was pulverized until $98 \%$ passed through a 100 mesh screen. For ICP analysis, 0.5 g of processed sample was digested in hot dilute aqua regia in a boiling water bath and diluted to 10 ml with demineralized water. Copper, lead, zinc, arsenic and silver were determined by ICP in which a 0.500 gram sample was digested with 3 ml of $3: 1: 2 \mathrm{HCL}-\mathrm{HNO}-\mathrm{HZO}$ at $95^{\circ} \mathrm{C}$ for one hour and was diluted to 10 ml with water. Gold was determined by AA in which a 10.0 g sample of the -100 mesh material was ignited overnight at
$600^{\circ} \mathrm{C}$ and later digested with hot dilute aqua regia. The resulting clear solution was extracted with Methyl Isobutyl Ketone (MIBK), and gold Au was determined in the MIBK extract by Atomic Absorption. The results for $\mathrm{Cu}, \mathrm{Pb}, \mathrm{Zn}, \mathrm{Ag}$ and As were reported in ppm while the results for Au were reported in ppb.

## 1992 Program

Core logging and sampling for the 1992 drilling program was conducted by Canasil Resources Inc. (Canasil) personnel. All drillholes were described in geological logs that showed sample intervals, generally $1-2 m$ in length, with corresponding results for gold and copper. Some drillholes, particularly those drilled in the White Pass zone were not sampled from top to bottom leaving large gaps of no analytical data between mineralized intervals (these intervals were sampled and analyzed in 1993). As a result only 72 core samples were collected and shipped to Acme Analytical Laboratories Ltd. in Vancouver, BC, for analysis. There is no description of core logging or sampling methods used. There is no reference to the use of blind certified reference standards, duplicates or blanks other than those inserted by the lab. There is no reference to the use of a check-assay procedure.

Core sample preparation and analyses are the same as those methods employed in 1988, except that a total of 30 elements are reported.

## 1993 Program

Core logging and sampling for the 1993 drilling program was conducted by Romulus Resources Ltd. personnel. All drillholes were sampled from top to bottom and were described in detailed geological logs. Sample intervals, typically 2 m in length, and analytical results were tabulated in separate spreadsheets on a hole-by-hole basis with the corresponding sample identification number that can be cross-referenced with the Certificates of Analysis.

There is no description of core logging or sampling methods used. A total of 393 core samples were collected and shipped to Min-En Laboratories in Vancouver, BC, for analysis. There is no reference to the use of blind certified reference standards, duplicates or blanks other than those inserted by the lab. There is no reference to the use of a check-assay procedure.

Core sample preparation is not known. ICP analysis was used to determine levels of copper, silver, lead, zinc, arsenic and antimony. Fire assay methods were used to determine concentrations of gold and copper. Details of the analytical methods used are not known.

1995-1997 Programs
Core logging and sampling for the 1995 to 1997 drilling program was conducted by Canasil personnel. All drillholes were described in geological logs that showed sample intervals with
corresponding results for gold, copper and silver. Only select intervals of the drillholes were analyzed, generally corresponding to sections of visually mineralized and altered volcanic rocks. Sample lengths generally coincided with each run drilled and were nominally 3 m in length. A total of 251 core samples were collected and shipped to Acme Analytical Laboratories Ltd. in Vancouver, BC , for analysis. There is no description of core logging or sampling methods used. There is no reference to the use of blind certified reference standards, duplicates or blanks other than those inserted by the lab. There is no reference to the use of a check-assay procedure.

Drill core samples were crushed and pulverized to -150 microns ( -100 mesh). A 0.5 g split from each sample was placed in a test tube; aqua regia was added to each test tube to digest the sample. The resulting sample solution was then heated for one hour in a boiling hot water bath $\left(95^{\circ} \mathrm{C}\right)$. The sample solution was then aspirated into an ICP emission spectrograph for the determination of 30 elements. Gold was determined by fire assay methods similar to those described for the 1988 and 1992 programs.

2002-2004 Programs
Core logging and sampling for the 2002, 2003 and 2004 drill programs was conducted by Northgate Exploration Ltd. (Northgate) personnel. All drillholes were described in detailed geological logs that also provide sample intervals, sample identification numbers and corresponding results for gold and copper. Core logging and sampling was performed at Northgate's Kemess South minesite. The entire length of each drillhole was sampled. In 2002, samples were analyzed for 34 elements using an aqua regia ICP-AES package and gold was analyzed by one assay-tonne fire assay with an atomic absorption finish. In 2003-2004, the same multi-element and gold analytical methods were used, but all samples were also assayed for copper by triple-acid digestion with an atomic absorption finish, and select anomalous samples were assayed for zinc and lead.

Over the three drilling campaigns, Northgate collected a total of 2,221 core samples which were prepared at its the Kemess minesite prior to being shipped to ALS Chemex Labs (ALS) in Vancouver, BC, for analysis. Sample preparation followed detailed procedures provided to Northgate by ALS.

In 2002, a total of 35 quality control samples were inserted into the sample stream, but there is no distinction between core samples and control samples in the compiled data or in the analytical certificates within drilling summary reports. There was no assessment of the control sample results. In 2003, quality control samples were inserted into the sample stream, but in unknown quantities. There was no assessment of the control sample results.

In 2004, quality control samples (blanks, duplicates and standards) were inserted into the sample stream at regular intervals such that 1 in 26 samples were submitted for control purposes.

Analysis of seven blanks did not indicate any laboratory error or significant contamination. Five of six standards confirmed that gold and copper analytical results were within acceptable error limits with respect to accuracy. Fifteen duplicate assays indicated good reproducibility of both gold and copper assays. Northgate concluded that analytical work by ALS provided sound and accurate gold and copper analytical results for its 2004 diamond drilling program (Edmunds and Kay, 2004).

## 2007 and 2013 Programs

Core logging and sampling for the 2007 and 2013 drill programs were conducted by Canasil personnel. All drillholes were described in detailed geological logs; analytical results were tabulated in separate spreadsheets on a hole-by-hole basis with the corresponding sample identification number that can be cross-referenced with the Certificates of Analysis. Core logging and sampling was conducted on site. The entire length of each drillhole was logged by experienced geologists and split by experienced geotechnicians utilizing a hydraulic core splitter or a gas-powered core saw. The 2007 drillholes were sampled in their entirety while the top 500 m of the 2013 drillhole (BR-13-01) was not split because it twinned the upper part of drillhole BR-07-04. The remainder of BR-13-01 was split. The split and unsplit core was stored on the Project in core racks with core from previous exploration programs.

Drill core was logged for both geologic and geotechnical properties. Sample intervals were determined by the geologist, but were usually 2.0 m in length. Descriptive geological logs, geotechnical logs and assay certificates for the drillholes were reviewed by the writer.

Drillhole collar locations were surveyed by hand-held GPS, and are considered to be accurate within 3 m in plan. Elevation data was taken from the BC government digital elevation model presented on $1: 20,000$ scale trim, and is considered accurate within 20 m . Downhole surveys were completed on each drillhole.

Samples from both programs were sent to ALS for preparation and analysis. Each sample was analyzed for 33 major and trace elements by four-acid ICP-AES analysis and assayed for gold by fire assay with an atomic absorption finish on a 30 g split. In 2007, quality control samples (blanks, duplicates and standards) were not inserted into the sample stream at regular intervals; in addition, ALS inserted standards of its own and ran some duplicates as part of its standard operating procedures, but an assessment of this data was not performed. In 2013, quality control samples (blanks, duplicates and standards) were inserted into the sample stream on a regular basis and can be denoted on analytical certificates by an ' $A$ ' or ' $B$ ' sample number suffix. An assessment of this data was not compiled in the drilling report.

### 11.5 2017 Verification Sampling

The samples collected by the writer in 2017 were from drill core and from one trench. Each sample was placed in a plastic sample bag with a uniquely numbered tag from a sample tag book, and closed securely with a zip tie. The tag book comprised three distinct tags per each unique number; the second tag was placed in the core box and the third tag remained in the sample tag book for future reference. The samples were transported by the writer from the Project and stored securely prior to being shipped by commercial courier to the laboratory in Langley, British Columbia.

MS Analytical Laboratories ("MS") in Langley, British Columbia, analyzed the samples from 2017 verification sampling of the historic drill core. MS conforms to a quality system that meet or exceeds the requirements outlined in the ISO 9001 and ISO/IEC 17025 standards. Results are shown in Table 12-1.

## Sample Preparation

- Each sample received by MS lab staff was dried and individually crushed and pulverized following preparation procedure PRP910 whereby samples are jaw crushed until $70 \%$ of the sample material passes through a 2 mm screen.
- From this material a 250 g riffle split sample is collected and then pulverized in a mild steel ring-and-puck mill until $85 \%$ passes through a $75 \mu \mathrm{~m}$ screen.
- A 0.2 g split of each milled sample is collected for multi-element analysis and ore grade lead and/or zinc analysis, and a 30 g split of each milled sample is collected for gold assay.


## Sample Analytical Procedures

The following laboratory procedures were used to analyze the core and rock samples, and associated QA/QC samples, collected in 2017.

## Multi-element Analyses

- A 0.2 g split of each milled sample was evaluated for 48 elements, including silver, by a four acid digestion using a combination of hydrochloric, nitric, perchloric and hydrofluoric acids using ICP-AES/MS ultra-trace level analysis (method IMS-230).


## Gold Analysis

- A 30 g split of each milled sample was evaluated for gold by lead collection fire assay fusion with an AAS finish (method FAS-111).

Two multi-element Certified Reference Standards (CRS) were inserted into the 2017 sample batch and MS inserted one CRS into the sample batch. A statistical analysis of the CRS used was not performed because of the small number of samples. However all results were within an acceptable range of the recommended values for gold, copper, silver and molybdenum (Table 11-2).

Table 11-2: Certified Reference Standards - 2017 Results

| CRS ID | Sample ID | Inserted by | Lab Assay | CRM <br> Value | CRM low | CRM high | Within CI |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Au g/t |  |  |  |  |  |  |  |
| CDN-CM-24 | 3776 | QP | 0.503 | 0.521 | 0.465 | 0.577 | Yes |
| CDN-GS-P4C | CDN-GS-P4C | MSA | 0.350 | 0.362 | 0.326 | 0.398 | Yes |
| Cu \% |  |  |  |  |  |  |  |
| CDN-CM-24 | 3776 | QP | 0.369 | 0.365 | 0.345 | 0.385 | Yes |
| CDN-CM-31 | 3787 | QP | 0.081 | 0.084 | 0.078 | 0.090 | Yes |
| Ag g/t |  |  |  |  |  |  |  |
| CDN-CM-24 | 3776 | QP | 4.3 | 4.1 | 3.7 | 4.5 | Yes |
| CDN-CM-31 | 3787 | QP | 0.7 | 0.5 | - | - | - |
| Mo ppm |  |  |  |  |  |  |  |
| CDN-CM-31 | 3787 | QP | 95 | 90 | 70 | 110 | Yes |

### 11.6 Summary of Quality Assurance / Quality Control (QAQC) Procedures

QAQC procedures were not in place for drilling programs completed on the Project from 19881997. In 2002, Northgate instituted the first QAQC program of record on the Project. However, reports for the 2002-2003 Northgate work do not include an assessment of the effectiveness of the lab based on the blanks, standards and/or duplicate core samples it inserted into the sample stream for each batch submitted to the lab. In 2004, Northgate completed an assessment of its QAQC program concluding that analytical work by ALS provided sound and accurate gold and copper analytical results for the 2004 diamond drilling program. In 2007, no QAQC procedures were employed, and in 2013, while QAQC procedures were employed, no assessment of the accuracy and precision of the lab was determined.

### 11.7 SAMPLE SECURITY

All samples collected on the Brenda Project were packaged for shipment under the management of the project geologist. Samples were sent to the lab in one or more batches by either the exploration company running the program, typically at the end of the season, or by commercial trucking company familiar with the remote area.

### 11.8 Adequacy Of Sample Preparation, Security And Analytical Procedures

The writer concludes that security, sample collection, sample preparation and analytical procedures utilized during historical drill programs were completed by professional geologists working for well-established junior mining exploration companies and therefore likely met or
exceeded the best management practices and standards of the era in which the work was performed.

Use of a comprehensive QAQC program is recommended for all future exploration programs on the Brenda Project to insure that all analytical data can be confirmed to be reliable.

## 12 DATA VERIFICATION

The data verification process included review of drill logs, analytical database, analytical certificates, project core handling, logging, sampling, QAQC and analytical protocols, geophysical reports and a site visit. The review of the QAQC program and results is presented in Section 11 of this Report. The data base for the Project is considered to be reliable and appropriate to prepare this Report.

Robert A. (Bob) Lane, MSc, PGeo, visited the Project on August 27-28, 2017. The road-based site visit included:

- inspections of the camp, core logging and core storage facilities,
- examination of host rock geology and/or mineralization at the EB and White Pass zones,
- visits to numerous historic drillhole collar locations on the EB and White Pass zones,
- review, examination and sampling of core from holes drilled in the White Pass zone from 1993-2007.

There was no activity on the Project at the time of the visit, therefore a review of active drill core handling, drill core Chain-of-Custody procedures, and QAQC methodologies could not be completed.

The tour of the camp, core logging and core storage facilities presented as a clean and wellorganized work environment consistent with small-scale exploration camps seen elsewhere in BC. Drill core is stored at the camp located on Brenda Project tenure at UTM (NAD83, Zone 9) co-ordinates 6349428 N and 628389 E .

The writer selected five drillholes for review and laid the core out for examination at the core storage area. Drillhole logs, analytical summary results and assay certificates were used to verify the core and logged intervals. The data correlated with the physical core and no issues were identified. In addition, the writer toured the core storage facility, randomly pulling and examining core from several additional drillholes. Core recoveries appeared to be very good to excellent, except near the tops of some holes where significant lengths of poor recovery was noted. Unsampled intervals in some of these drillholes correlated with post-mineralization dykes; the position of these dykes was accurately reflected in the drillhole logs.

It was noted that ten or more different geologists have logged core on the Project leading to the possibility of misidentification of certain geological units that host mineralization. While this is not considered critical, it may be in the company's best interest to re-log a number of drillholes to ensure that lithologic descriptions and terminology have been applied in a consistent and standardized manner across all of the holes drilled on the Project, particularly those in the White Pass zone.

### 12.1 Analytical Data Validation

Verification samples were collected by the writer in 2017 to validate earlier analytical results. The suite of samples consisted of eight drill core samples representing a total of five holes drilled in the White Pass zone. Competent core was sampled using a core saw (Figure 12-1), while badly broken sections were sampled manually by selecting an estimated half of the remaining material. All of the intervals sampled had their original sample tags intact making direct comparison possible.

In addition to core samples, one 0.7 m continuous chip sample was collected from the centre of the EB zone trench (Figure 12-2) to characterize the zone. It was included in the batch of verification samples submitted for analysis. Two Standard Reference Material (SRM) samples and one blank sample were inserted into the batch for control.

The batch of samples was submitted to MS Analytical (MSA) in Langley, BC, for analysis. The analytical methods used were Fire Assay with AAS finish for Au and four-acid digestion with ICPAES/MS for ultra-trace multi-element analysis. The 2017 results are compared with those from the original sample results Table 12-1. Figures 12-3 and 12-4 compare new data with original values and show that there is a reasonably good correlation for both gold and copper.

Overall, the new data produced from the re-sampling and re-analysis of selected intervals of historical drill core correlated well with the original values and verify that earlier operators followed proper procedures and used adequate care to obtain reliable results.

## Adequacy of Data

The writer is confident that the data and results are valid based on the site visit and inspection of all aspects of the project; this confidence extends to the methods and procedures used. The verification program determined that the historical data base, compiled from hard-copy and electronic drillhole logs, cross-sections and maps, and unpublished private reports, is adequate and provides a sound technical framework upon which future exploration programs can be built.


Figure 12-1: Quartered drill core, White Pass zone, Brenda Project


Figure 12-2: Continuous 0.7 m chip sample, EB zone, Brenda Project

Table 12-1: Analytical Results for 2017 Verification and Character Samples, Brenda Project

| Drill Core and Rock Samples |  |  |  |  |  |  | 2017 Analytical Results |  |  | Previous Analytical Results |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Zone | Previous ID | $\begin{gathered} 2017 \\ \text { ID } \end{gathered}$ | Hole ID | From <br> (m) | To (m) | Description (host rock, alteration, mineralization) | Aug/t | $\mathrm{Cu} \%$ | Ag g/t | Au g/t | $\mathrm{Cu} \%$ | Ag g/t |
| White Pass | 64611 | 3778 | BR-93-01 | 53.93 | 57.00 | pink to grey porphyritic (plagioclase, hornblende, augite) latite flow with $1 \% \mathrm{f}$-gr diss py; cut by qz stringers; late gypsum stringers | 0.322 | 0.122 | 1.4 | 0.450 | 0.140 | 1.5 |
| White Pass | 68663 | 3779 | BR-07-04 | 222.00 | 224.00 | pinkish-brown potassic-altered latite flow cut by qz-mt-py+/-ep veinlets | 0.340 | 0.115 | 5.6 | 0.380 | 0.118 | 4.9 |
| White Pass | 68664 | 3780 | BR-07-04 | 224.00 | 226.00 | pinkish-brown potassic-altered latite flow cut by qz-mt-py+/-ep veinlets | 1.701 | 0.210 | 3.8 | 1.480 | 0.193 | 2.7 |
| White Pass | 110171 | 3781 | BR-97-01 | 167.40 | 170.40 | pinkish-brown to pale green porphyritic latite flow cut by qz-mtpy stringers | 1.459 | 0.109 | 4.2 | 1.400 | 0.114 | 4.3 |
| White Pass | 110172 | 3782 | BR-97-01 | 170.40 | 172.80 | pinkish-brown to pale green porphyritic latite flow cut by qz-mtpy stringers | 1.726 | 0.156 | 5.8 | 2.550 | 0.213 | 8.4 |
| White Pass | 122388 | 3783 | BR-03-07 | 165.40 | 167.40 | strongly hematitic, pinkish-grey mottled porphyritic intermediate volcanic flow cut by qz-mt $\pm$ py stringers; anhydrite in late fractures | 0.261 | 0.066 | 5.6 | 0.220 | 0.055 | 5.3 |
| White Pass | 122391 | 3784 | BR-03-07 | 171.40 | 173.40 | strongly hematitic, pinkish-grey mottled porphyritic intermediate volcanic flow cut by qz-mt$p y \pm c p \pm e p$ stringers; anhydrite in late fractures | 0.418 | 0.101 | 7.0 | 0.556 | 0.116 | 6.9 |
| White Pass | 210253 | 3785 | BR-04-12 | 115.80 | 117.30 | grey-green massive andesite flow, weak propylitic alteration, 1-2\% diss py | 0.712 | 0.098 | 4.6 | 0.807 | 0.101 | 4.3 |
| EB | - | 3786 | - | - | - | EB trench: 0.7 m continuous chip sample across rusty-weathering, pyritic augite-phyric andesite cut by two qz-py veins oriented 030/80E | 0.659 | 0.008 | 17.1 | - | - | - |



Figure 12-3: Correlation of Core Duplicate Pairs for Gold

Verification Sample Results for Copper


Figure 12-4: Correlation of Core Duplicate Pairs for Copper

## 13 MINERAL PROCESSING AND METALLURGICAL STUDIES

There has been no mineral processing or metallurgical studies on the Brenda Project.

## 14 MINERAL RESOURCE ESTIMATES

There are no current mineral resource estimates on the Brenda Project.

## 15 MINERAL RESERVE ESTIMATES

There are no current mineral reserve estimates on the Brenda Project.

## 16 MINING METHODS

The Brenda Project is not an 'advanced property' as defined by NI 43-101; therefore this section is not applicable.

## 17 RECOVERY METHODS

The Brenda Project is not an 'advanced property' as defined by NI 43-101; therefore this section is not applicable.

## 18 PROJECT INFRASTRUCTURE

The Brenda Project is not an 'advanced property' as defined by NI 43-101; therefore this section is not applicable.

## 19 MARKET STUDIES AND CONTRACTS

The Brenda Project is not an 'advanced property' as defined by NI 43-101; therefore this section is not applicable.

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

The Brenda Project is not an 'advanced property' as defined by NI 43-101; therefore this section is not applicable.

## 21 CAPITAL AND OPERATING COSTS

The Brenda Project is not an 'advanced property' as defined by NI 43-101; therefore this section is not applicable.

## 22 ECONOMIC ANALYSIS

The Brenda Project is not an 'advanced property' as defined by NI 43-101; therefore this section is not applicable.

## 23 ADJACENT PROPERTIES

Properties adjacent to the Brenda Gold-Copper Project are shown in Figure 23-1. They include the Shasta and Baker properties of Sable Resources Ltd., the Pil property of Findlay Minerals Ltd., and the Joy property of Amarc Resources Ltd. Shasta and Baker are former small-scale goldsilver producers currently on care-and-maintenance. The Pil and Joy properties are prospective for porphyry and epithermal mineralization similar to that found on the Project.

Other significant nearby properties include Lawyers, located approximately 25 km northwest of the Project, and Kemess, located 25 km south of the Project. The Lawyers property of PPM Phoenix Precious Metals Corp. is a former underground gold-silver mine that is the subject of intermittent exploration.

Veins and vein-like structures occur on the Brenda Project. Vein mineralization identical to that on the Lawyers, Shasta, and Baker mine properties has not been found on the Project. The writer is unable to verify the information on the Lawyers, Shasta, and Baker mine properties and this information is not necessarily indicative of the mineralization on the Project that is the subject of this technical report.

The Kemess property of AuRico Metals Inc. includes the former Kemess South open pit goldcopper mine and the Kemess Underground and Kemess East deposits. Aurico received an environmental certificate for development of its Kemess Underground (KUG) deposit on March 15,2017 . The KUG deposit has probable reserves 107.4 million tonnes grading $0.54 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 0.27$ \% Cu and $1.99 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$, and indicated resources of 246.4 million tonnes grading $0.42 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 0.22$ \% Cu and $1.75 \mathrm{~g} / \mathrm{t}$ Ag (SRK, 2016). Aurico's Kemess East deposit, located 1 km east of KUG, has inferred resources of 113.1 million tonnes grading $0.46 \mathrm{~g} / \mathrm{t} \mathrm{Au}, 0.38 \% \mathrm{Cu}$ and $1.94 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ (SRK, 2017).

Porphyry gold-copper mineralization similar to that at the Kemess property has not been found at the Project. The reserves and resources reported on the Kemess property are not present at the Project. The writer has not done sufficient work to classify the information on the Kemess property as current mineral resources or mineral reserves and this information is not necessarily indicative of the mineralization on the Project that is the subject of this technical report. Canasil is not treating the information on the Kemess property as current mineral resources or mineral reserves.


## 24 OTHER RELEVANT DATA AND INFORMATION

The writer has reviewed the sources of information cited in the text and listed in the Section 27 of this report. The information includes written descriptions, drillhole logs, cross-sections and maps produced by various operators on the Brenda Project over a period of more than 35 years. Some of the reports reviewed are public assessment reports available through the B.C. Ministry of Energy and Mines Assessment Report Indexing System (ARIS), while others are internal reports completed by the operator. The writer is not aware of any additional sources of information that might significantly change the conclusions presented in this Report.

The writer is not aware of any foreseeable extraordinary difficulties that should arise or hamper additional exploration activities on the Brenda Project.

## 25 INTERPRETATION AND CONCLUSIONS

The Brenda Project has a relatively short exploration history from its discovery in 1950 to its first diamond drilling in 1988.

The Brenda Project includes four principal zones that have been the focus of exploration, including the EB, Takla, Creek and White Pass zones.

The EB and nearby Takla zones are vein occurrences in the western part of the Brenda Project. The EB zone carries low values of gold and silver in weakly silicified and quartz-veined pyritic andesite of the Takla Group. The EB zone appears to be limited in extent. The Takla zone is described as an epithermal vein occurrence, also within Takla Group rocks, that includes high grades of gold and silver in surface samples. Drilling of the zone was not encouraging. Both of the zones should be evaluated as part of a Project-wide reassessment.

The Creek zone is a gold-copper porphyry prospect that occurs near the northern boundary of the Brenda Project. Results from surface sampling and short, near-surface drillhole intersections returned low to moderate concentrations of silver, lead and zinc with anomalous levels of copper and gold. A detailed review of all existing data and, if warranted, modelling of the zone should be completed prior to any further physical work on the zone.

The White Pass zone has been the focus of exploration on the Brenda Project since 1993. It is an important gold-copper-silver porphyry prospect that is characterized by a strong colour anomaly caused by pervasive argillic alteration of exposed volcanic rocks, a broad gold-silver soil geochemical anomaly, a spotty copper soil geochemical anomaly, and a high chargeability anomaly. The zone has been tested by 41 diamond drillholes ( $10,034 \mathrm{~m}$ ) over the course of nine drilling programs that took place from 1992-2013.

The drilling demonstrated that White Pass zone mineralization occurs mainly within intermediate volcanic rocks of the Toodoggone Formation. Mineralization consists of quartzmagnetite $\pm$ pyrite $\pm$ chalcopyrite veinlets and stockwork zones and, locally, disseminated magnetite and pyrite within zones of strong phyllic and weak to moderate potassic alteration. Elevated concentrations of zinc and silver are common in the White Pass zone.

Drillhole data for the White Pass zone has been compiled and modelled. The resulting work outlined eight barren post-mineral dykes (PMD) oriented approximately $135^{\circ} / 75^{\circ} \mathrm{S}$ and distinguished them from weakly mineralized (anomalous to weak gold and copper values) Black Lake intrusive rocks that contain occasional quartz $\pm$ magnetite veins. White Pass zone mineralization is cut by the series of PMD resulting in alternating panels of mineralized rock and barren rock.

Modelling of White Pass zone data resulted in a Mineralized Zone (MZ), characterized by drillhole intersections of $>0.1 \mathrm{~g} / \mathrm{t} \mathrm{Au}$, and Higher Grade Zones (HGZ), characterized by drillhole intersections of $>0.4 \mathrm{~g} / \mathrm{t}$ Au. Three-dimensional shapes for the $M Z$ and $H G Z$ were generated in similar fashion to that of grade shell interpolation; some mineralized intervals cross PMD intervals if mineralization occurs on both sides of the PMD. The trend of the MZ has an orientation of $315^{\circ} / 30^{\circ} \mathrm{NE}$. The modelled shape for the MZ has approximate dimensions of 1000 m by 400 m and is from $100-600 \mathrm{~m}$ thick. The modelled shape for the HGZ has estimated dimensions of 200 m by 300 m and is 150 m thick.

Modelling of the White Pass zone suggests that additional mineralization may exist northeast and southwest of the zone. A chargeability anomaly is shown just below current shapes for the MZ and HGZ, and chargeability anomalies to the northeast and southwest of the shapes have not been drilled. Drilling has not tested beneath the chargeability anomalies. Figures 25-1 to $25-4$ show the position of the modelled MZ and HGZ shapes relative to high chargeability anomalies. The modelling also identified several gaps between mineralized intervals. Targeted infill drilling may connect some of the existing higher grade intervals thereby expanding the dimensions of the HGZ.


Figure 25-1: Plan view of the MZ in yellow and chargeability high in red. Green circles show untested areas


Figure 25-2: View at $315^{\circ}$ of the MZ in yellow and chargeability high in red. Green circles show untested areas


Figure 25-3: Plan view of the HGZ in pink and chargeability high in red. Green circles show untested areas


Figure 25-4: View at $315^{\circ}$ of the HGZ in pink and chargeability high in red. Green circles show untested areas

The zone shows reasonably good correlation between gold, copper and silver. These metals are commonly accompanied by significantly elevated concentrations of zinc. Molybdenum is present in meaningful concentrations over short intervals.

The generalized porphyry deposit model is characterized by anomalous concentrations of zinc and silver peripheral to its core. This relationship is common in other deeper porphyry deposits in British Columbia. The White Pass zone is unusual in that the central gold-copper zone carries significant levels of zinc. This may be the result of overprinting by multiple mineralizing events, such as the overlapping of a high level porphyry system with that of a genetically related epithermal system, a feature not uncommon with telescoped porphyry systems (Sillitoe, 2010) or from post-mineral tilting of the porphyry system. Alternatively, it may suggest that a higher grade copper-gold zone is yet to be discovered at the Brenda Project.

### 25.1 RISKS AND UNCERTAINTIES

Risks and uncertainties associated with exploration at the Project include:

- Ability of Canasil to obtain necessary permits; and
- The porphyry copper-gold target is technically justified based on the geology and mineralization encountered to date both on the Project and at the adjacent properties. The risk associated with this target type lay in the relation between grade and size of any
porphyry-style mineralized zone to depth of the zone beneath waste rock. It may not meet the criteria necessary to become a mine; and
- Political, legal or regulatory risk factors that include but are not limited to changes to laws, expropriation, changes in taxation or royalty regimes or non-issuance, cancellation or revocation of permits or licenses required to develop and operate the Project; and
- Project risk factors that would be expected to potentially impact any project such as this Project, such as adverse weather conditions, acts of god and other force majeure events, delays due to unforeseen factors such as late delivery or unavailability of equipment or materials or unavailability of labour resources, poor performance by contractors or construction contractors, disputes with local residents, etc.; and
- Political, legal or regulatory risk factors, for example changes to laws, expropriation, changes in taxation or royalty regimes or non-issuance, cancellation or revocation of permits or licenses required to develop and operate the Project; and
- There is the risk that Canasil may not be able to raise sufficient capital to adequately explore the entire Project. The program and budget proposed in this Technical Report will be just the start of the series of drilling campaigns and technical studies that are needed to take an exploration project through to becoming a mining Project.

All these risks and uncertainties, individually or combined could affect the Project's continuing viability and/or ultimately its economic viability.

## 26 RECOMMENDATIONS

The following multi-parameter Phase I exploration program is recommended.

## Phase I

- A LiDAR survey should be flown over the entire Project area. Added control should be obtained by placing markers at highly visible known locations such as the camp and drill sites,
- Relogging of select drillholes to confirm the PMD and mineralized Black Lake Intrusive intervals, and to check for mineralogical/alteration characteristics that distinguish higher grade zone mineralization from lower grade zone mineralization,
- Perform a data entry review to ensure that all compiled data is accurately represented in the database,
- Detailed field mapping and bedrock sampling of areas defined as anomalous by previous prospecting or regional mapping,
- Conduct soil geochemical sampling in select areas, as required, to expand upon or add further definition to existing geochemical anomalies,
- Complete a 400 line-km helicopter-borne ZTEM survey of the entire Brenda Project utilizing contractor Geotech Ltd. (Figure 26-1). The airborne survey uses an electromagnetic method suitable for porphyry copper-gold exploration because of its deep penetrating capabilities and its capacity to map weak resistivity contrasts associated with alteration systems. The magnetic and resistivity results from the survey may help identify major structures, alteration zones and mineralized zones for drillhole targeting.
- Drill 3-4 oriented core holes to depths of at least 700 m on priority targets identified by the ZTEM survey and/or the model presented in Section 25 of this report. A preliminary list of proposed drillhole locations to be considered is shown in Table 26-1.
- All analysis should include gold by fire assay and multi-element analysis by four acid ICPAES.

The estimated cost of the recommended Phase I exploration program is $\$ 530,000$ and is laid out in Table 26-2. A second phase of exploration is also recommended to further define and assess targets on the Project, but is dependent on successful completion of the Phase I program.

Phase II

- A ground-based 3DIP geophysical survey, such as the Titan24 or Orion3D surveys of Quantec Geoscience, on specific targets identified by the modelling presented in Section 25 of this report, by results of the ZTEM survey and/or by results of Phase I drilling. The Titan24 method provides an amount of 2D DCIP and MT data from surface to a depth of 1.5 km ; it is more economical than the more refined Orion3D method which collects omni-directional DCIP and MT data for true 3D acquisitions and inversions over the same vertical profile as Titan24. The results from either geophysical technique could be
indicative of potential porphyry mineralization, such as a chargeability high coupled with a moderate to high MT response.
- Follow-up diamond drilling on targets outlined, but not tested, in Phase I and identified in Phase II.


Figure 26-1: Area of proposed ZTEM survey corresponding to outline of Brenda Project

Table 26-1: Preliminary Proposed Drillhole Locations, Brenda Project

| Drillhole Name | Easting | Northing | Elevation | Azimuth | Dip | Depth m |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BR1701 | 628073 | 6347828 | 1476.853 | 235 | -80 | 700 |
| BR1702 | 628268 | 6347844 | 1543.926 | 55 | -70 | 700 |
| BR1703 | 628385 | 6347875 | 1580 | 55 | -70 | 700 |
| BR1704 | 628475 | 6348075 | 1522.224 | 55 | -70 | 700 |
| BR1705 | 628550 | 6348275 | 1506.523 | 55 | -75 | 700 |
| BR1706 | 628700 | 6348100 | 1604.028 | 55 | -75 | 700 |
| BR1707 | 628625 | 6347950 | 1623.65 | 55 | -70 | 700 |

Table 26-2: Estimated Budget for Phase I Exploration Program, Brenda Project

| Activity | Est. Cost |
| :--- | ---: |
| LiDAR survey | $\$ 40,000$ |
| Soil Sampling \& Field Mapping | $\$ 50,000$ |
| ZTEM Geophysical Survey | $\$ 70,000$ |
| Diamond Drilling (2,100m @ \$150/m) | $\$ 320,000$ |
| Sub-Total | $\$ 480,000$ |
| Contingency (10\%) | $\$ 50,000$ |
| Total | $\$ 530,000$ |

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