

# NI 43-101 TECHNICAL REPORT ON THE CHAMBERS SETTLEMENT GOLD PROJECT, NEW BRUNSWICK, CANADA

Prepared For:

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#### 1.0 SUMMARY

#### 1.1 Overview

Red Lake Gold Inc. and its wholly-owned subsidiary Alma Gold Inc. ("Alma Gold") retained Mercator Geological Services Limited ("Mercator") with respect to planning an exploration program and completing a National Instrument 43-101 ("NI 43-101") Technical Report for the Chambers Settlement Gold Project ("Chambers Settlement" or the "Project") located in New Brunswick, Canada. Alma Gold is a wholly-owned subsidiary of Red Lake Gold Inc. ("Red Lake Gold"), which in turn is a publicly-traded exploration company based in Vancouver, British Columbia. The term "Alma Gold" is used for current report purposes to collectively reference both Alma Gold Inc. and Red Lake Gold Inc.

Alma Gold has executed an option agreement to acquire a 100% interest, less the below described NSR, in Chambers Settlement from Avalon Gold Resources Inc. ("Avalon Gold"), an arm's-length party based in Toronto, Ontario, Canada. The Project has had recent exploration work completed by Avalon Gold with follow-up work planned by Alma Gold. The terms of the Project option agreement involve a series of cash payments over a four-year earn-in period, and the granting of a 2% Net Smelter Return royalty (NSR), half of which may be re-purchased by Alma Gold.

This technical report summarizes the work completed by previous owners of the Chambers Settlement mineral claims with respect to historical mining activities and surface exploration work. The Project is considered an "early stage exploration property", with the most recent exploration work being completed by Avalon Gold in 2019. Alma Gold had not completed any exploration or drilling on the Project as of the effective date of this technical report.

The report author completed a personal inspection (site visit) of the Chambers Settlement Gold Project on June 25, 2020. This site visit was completed for the purposes of site inspection, ground truthing, review of historical field activities and to satisfy NI 43-101 "personal inspection" requirements. During his personal inspection, the report author visited claim groups 9107 and 9108, which comprise the Chambers Settlement Gold Project and verified the geology, mineralization, local infrastructure, and accessibility into the project area for future exploration activities by Alma Gold.

During the site visit, the report author completed the following tasks and inspections:

- Verified the extent of the alteration and mineralization from the central part of the project area (adjacent to the Chambers Settlement mineral occurrence) to the northeast and southwest regions within both claim groups;
- Field reconnaissance of above-mentioned claim groups including verifying roadside and stream geology/mineralization and access into the project area via J.D. Irving (JDI) owned logging roads; and
- Reviewed the data and quality assurance/quality control (QAQC) procedures for the historical exploration programs, with a focus on the recent Avalon Gold exploration activities on claim groups 9107 and 9108 in 2019.



#### 1.2 Property Description and Ownership

The Chambers Settlement Gold Project is comprised of mineral claim groups 9107 and 9108 (320 claim units) registered under Avalon Gold (Table 1-1) and is approximately 72,154 hectares in size. The two mineral claim groups are located in Kings County, New Brunswick, approximately 25 km east of the Town of Sussex. The Project is centred at map coordinates 232,200 m Easting and 5,059,060 m Northing (UTM NAD83 Zone 20N) within NTS Map Sheet 21H/11.

Table 1-1: Mineral Claims Table for Chambers Settlement Gold Project

Claim Number	Claim Group Name	Registered Owner	Number of Claim Units	Issue Date	Expiry Date	Area (Ha)
9107	Chambers Settlement NE	Avalon Gold Resources Inc. (100%)	220	2019-03-19	2022-03-19	49,575
9108	Chambers Settlement S	Avalon Gold Resources Inc. (100%)	100	2019-03-19	2022-03-19	22,579
			320			72,154

The Project is located in southern New Brunswick, approximately 80 km southwest of the City of Moncton (pop. 114,810) and 91 km northeast of the City of Saint John (pop. 68,000). The closest international airport is the Greater Moncton Roméo LeBlanc International Airport (YQM) located approximately 10 km east of downtown Moncton. Regional airline service (Air Canada and Porter Airlines) is also available from Saint John Airport (YSJ) with daily direct flights from Halifax, Montréal, and Toronto. The properties can be easily be accessed via New Brunswick Route 1 (four-lane controlled access highway) and then departing at Exit 211 (Penobsquis-Alma-Fundy National Park exit) and heading east on Route 114 towards Fundy National Park. After approximately 11 km turn right onto the Morton Road (forestry road) and travel another 10 km on JDI forestry roads to reach the Chambers Settlement project area. Several small forestry roads and multi-use trails located on Crown and private lands allow excellent access into claims 9107 and 9108 via truck, all-terrain vehicle or by foot in the Mechanic Settlement area, east and west of Route 114. The closest town to offer full services is Sussex, NB approximately 20 km northwest of the Project off Route 1. The town of Sussex includes full-service accommodations, grocery stores and restaurants, shopping centres, hardware stores, and gas stations.

The Chambers Settlement Project is located on Crown land and private forestry lands owned by J.D. Irving Ltd. and Rothesay Paper Holdings Ltd. and Alma Gold will need to negotiate a surface land access agreement with each of these forestry companies to complete any future, surface-disturbing exploration work on the mineral claims such as ground geophysical surveys requiring line cutting, trenching and all drilling activities. These land access agreements would cover any land disturbance or other damage associated with the intended exploration work and need to be renewed on a regular basis. However, if no land disturbance or tree cutting is required, such as for geological mapping and soil and stream sampling programs, a notice of planned work permit should suffice.



Alma Gold has confirmed that it has not entered into any land access agreements with J.D. Irving Ltd. and Rothesay Paper Holdings Ltd. and the Crown as of the effective date of this technical report. It will be necessary to establish such customary agreements to carry out various components of the future exploration work recommended in this technical report.

The report author is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the recommended work program on the property.

#### 1.3 Geology and Mineralization

The Caledonian Highlands of southern New Brunswick consist mainly of Late Neoproterozoic volcanic, sedimentary, and plutonic rocks and overlying Cambrian to early Ordovician sedimentary rocks on the eastern margin of the Appalachian Orogen, known collectively as the Caledonia terrane (Barr and White 1996, 1999a). The Caledonia terrane forms part of the larger Avalonia terrane, a composite peri-Gondwanan terrane containing segments generally recording Neoproterozoic to Cambrian histories of deposition, igneous activity, and deformation. In eastern North America, the Avalonia terrane stretches from the Avalon peninsula in eastern Newfoundland, through southeastern Cape Breton Island, Nova Scotia, the Cobequid and Antigonish Highlands of Nova Scotia, southern New Brunswick, and into Massachussets (Hibbard et al. 2006, Texidor-Carlsson, 2007). The Caledonia terrane has been interpreted as an accretionary complex on the trench side of the Broad River Group magmatic arc (White et al. 2001), indicating that subduction was to the southeast of the present-day location.

The Chambers Settlement Gold Project and associated gold occurrence are hosted within the 620 Ma mafic to intermediate volcanic rocks of the Hubley Hill Formation, which is part of the Broad River Group. The Hubley Hill Formation is comprised of dark grey, fine- to medium-grained, andesitic crystal tuff, minor andesitic to dacitic lithic crystal tuff and rare andesitic to basaltic flows (Barr and White, 2004). The Hubley Hill Formation is intruded by the mid-Neoproterozoic Point Wolfe River Pluton to the east and is interpreted to be in faulted contact with Coldbrook Group volcanic rocks to the west. Its exact relationship to other formations within the Broad River Group is currently undefined due to poor contact exposure. The Point Wolfe River Pluton (including the Old Shepody Road Granite) is a pink to grey medium to course grained granite grading to granodiorite. The Old Shepody Road Granite also hosts three separate mineral occurrences. The irregular shape of the contact between the Hubley Hill Formation and the Old Shepody Road Granite, together with an abundance of granitoid dykes and the presence of metamorphic biotite in the groundmass of some samples adjacent to the pluton indicate that the contact is intrusive (Barr and White 1999a).

Bedrock alteration in the project area probably resulted from circulation of a relatively acidic fluid flowing through and reacting with the host rock, with leaching of alkali elements such as Na and K due to the breakdown of K-feldspar and albite, and the formation of muscovite (Texidor-Carlsson, 2007). The continued flow of acidic fluid could have resulted in further loss of Na and K and the breakdown of muscovite into kaolinite, pyrophyllite and chlorite as seen in many rock samples. Alunite, which is an indicator mineral for many epithermal-Au deposits, occurs in more altered rocks in the project area (Texidor-Carlsson, 2007).



Base metal and precious metal mineralization in the Chambers Settlement project area is hosted by all lithologies described above, including quartz veins. Most of the mineralization occurs in a hydrothermally altered siliceous and pyritic zone that appears to parallel the regional SW-NE trending metamorphic foliation and is exposed in several outcrops near the historical mine workings. Specifically, the sulphide mineralization is hosted by highly silicified felsic crystal and lithic tuffs. Observed alteration mineral assemblages include topaz, pyrophyllite and/or kaolinite; and pyrophyllite, kaolinite, quartz, specularite with minor chalcopyrite. Rock samples collected in the project area and near the historical Watson mine by past operators have returned elevated levels of Au, Cu, and Mo, including one grab sample collected near the historical adit by Geodex Minerals which graded approximately 1 g/t Au (Martin, 2006). The presence of pyrite is pervasive in visually altered samples, and chalcopyrite (cpy) and sphalerite (sph) are present in some samples near the mineral occurrence, particularly those that visually appear to be highly altered.

#### 1.4 Historical Exploration

Minimal historical exploration work has occurred on the Chambers Settlement Gold Project prior to Avalon Gold's acquisition of claims 9107 and 9108 in March 2019. Historical work in the region includes the Watson silver and gold mine shaft and horizontal adit completed by the New Brunswick Silver and Gold Mining Company during the 1880's (Martin, 2006), which is now referred to as the Chambers Settlement gold occurrence and located on adjacent claims owned by DS Explorations Ltd. Historical records indicate that the mine shaft in the area was sunk to a depth of at least 100 ft in search of silver, copper, and gold (source: NB Mineral Occurrence Database – reference number 1429).

Additional historical work on the Project includes: (1) Noranda Exploration Canada Ltd completing soil and stream silt sampling, ground geophysical surveys, and geological mapping in 1969; (2) Corona Corp completing soil sampling within the northwestern part of the project area in 1989; and (3) Geodex Minerals Ltd. completing VLF-EM surveys, mobile metal ion (MMI) soil geochemistry surveys, trenching, and geological mapping in 2006. Trenching and prospecting returned results up to 1,032 ppb Au from grab samples of rock rubble near the adit, and several other anomalies of lead, zinc, copper and molybdenum in rock grab samples were also identified by Geodex Minerals Ltd.

Since acquiring claims 9107 and 9108 in March 2019, Avalon Gold has completed the following exploration activities between May 2019 and December 2019 on the Project, as reported by Burke (2020a, 2020b):

- Historical compilation and digitization;
- Ground magnetics survey;
- Soil, stream, and rock geochemistry surveys;
- Detailed field mapping programs; and
- Geostatistical analysis and interpretation of multi-element geochemistry data gathered from these surveys using Principal Component Analysis (PCA) methods.

A total of \$130,165.25 in qualifying exploration expenditures have been completed on the Chambers Settlement Gold Project (claims 9107 and 9108) by Avalon Gold within the past 36 months.



#### 1.5 Interpretation and Conclusions

Based on recent exploration work and geological interpretations by Avalon Gold, the Chambers Settlement Gold Project appears to contain thin zones of structurally controlled Au and sulphide mineralization and associated alteration that follow a prominent NE-SW oriented shear/fault corridor that includes the adjacent Chambers Settlement mineral occurrence. Potential for sheet-like veins and silicified zones exists within this fault corridor and warrants further focused investigation. This main structural trend is interpreted to be offset by several WSW-ENE strike-slip faults that were reactivated during the Carboniferous Period. Additional veining sequences may exist which could account for distribution and spatial correlation in elevated to anomalous Ag-Pb and Au-Mo-Cu-Bi-Te soil geochemistry trends identified in B-horizon soil geochemistry surveys and rock sampling programs completed to date on the property. However, to date only limited evidence of vein exposures or residual quartz have been discovered and sampled in the Chambers Settlement project area. Definition of new zones of such mineralized material will be critical to progressing the project forward as a possible epithermal gold target.

The current extent of the Chambers Settlement geochemical signature as defined in recent bedrock and soil geochemistry survey results is estimated to be between 700 metres and 1,100 metres in length by 150 metres in width in the immediate area around the mineral occurrence. Shear zones associated with this trend are steeply dipping to the SE at surface and are interpreted to extend onto claim 9107 (Burke, 2020a; 2020b). The bedrock alteration zone present on the property may be wider than the soil geochemical signature and appears to extend for at least 2 km of strike length along the favourable structural corridor that includes, in part, a mineralized chlorite schist unit. Additional alteration was noted by Avalon Gold in the northeast area of the property where the Hubley Hill Formation is exposed, surrounded by Carboniferous rock units. Regional stream geochemistry gold results in that area are low, but Mo, Ag, Cu and Te results are anomalous. The latter are considered potential pathfinders (vectors) to additional Au mineralization to both the NE and SW of the mineral occurrence.

Within claim 9108, Mo, Cu, Ag and Te dominate the stream sediment geochemistry results near the SE portion of the Hubley Hill Formation, whereas Au appears to be more localized. Alteration was observed in the area surrounding the magnetic low discovered during 2019 Avalon field program, but due to limited rock exposure in this region presence of bedrock sulphide and/or Au mineralization has not been confirmed.

Initial interpretations of the limited structural and geochemical data collected by Avalon Gold suggest that mineralization in the Chambers Settlement project area is structurally controlled and exhibits advanced argillic alteration typically associated with epithermal gold deposits. However, the project area could have porphyry potential to the south and intermediate to high sulphidation epithermal potential to the northeast (Burke, 2020a, 2020b). Advanced argillic alteration located at the Chambers Settlement mineral occurrence is surrounded by phyllic (sericitic) alteration progressing to propylitic alteration towards the SE in a potential thrust fault contact. The nature of the magnetic low response in this faulted area requires further investigation, particularly due to the presence of potassic bedrock alteration in the vicinity of elevated Mo and Ag levels found in the regional stream geochemistry survey. Additionally, Se is concentrated in soils near the magnetic low anomaly, which is typical of some low to intermediate



epithermal systems. These results may also indicate proximity to a potential silica cap of an epithermal system. Implications of a sodic-calcic alteration assemblage expressed at surface near the main showing may indicate a deeper setting (+300°C), but further mineralogical work is required to fully understand the effects of metasomatism in the project area. Additional work further to the NE and SW from the central part of the project area is required to fully understand the structure, deposit style, and mineralization potential in the entire Chambers Settlement project area.

#### 1.6 Recommendations

A phase one exploration program is recommended for Chambers Settlement based on the results from the 2019 exploration program by Avalon Gold. This next phase of exploration is focused on expanding Alma Gold's understanding of the geology, structure, alteration, and mineralization potential in the NE and SW regions of the project area.

Past exploration has mainly been focused on, or adjacent to the Chambers Settlement mineral occurrence in the central part of the project area. Due to thick overburden and glacial deposits, outcrop exposure can be limited in much of the project area. Therefore, soil and stream sediment surveys, ground and/or UAV magnetometer and VLF-EM surveys, and the use of hyperspectral mineral analyzers (i.e. TerraSpec) will continue to be important tools to discover additional mineralization within this potential epithermal/orogenic setting.

Table 1-2 below outlines the next phase of exploration and estimated costs associated with this program.

**Table 1-2: Recommended Program Budget** 

Phase 1	Task	Estimated Cost
	Rock, soil, and stream sediment sampling plus geological mapping	\$75,000
	and prospecting focused on SW part of claim 9108 over the	
	magnetic low anomaly, and in the NE part of claim 9107	
	(includes TerraSpec and laboratory geochemistry analyses)	
	UAV magnetometer and VLF-EM surveys over areas not already	\$25,000
	covered, extending existing grid to NE and SW	
	Data interpretation, conceptual modeling, and PCA work on	\$5,000
	geochemistry data to determine additional vectors for	
	mineralization based on alteration-related elements and	
	lithological variations	
	Total	\$105,000



#### 2.0 INTRODUCTION

#### 2.1 Scope of Reporting

Red Lake Gold Inc. and its wholly-owned subsidiary, Alma Gold Inc. ("Alma Gold"), retained Mercator Geological Services Limited ("Mercator") with respect to planning an exploration program and completing a National Instrument 43-101 ("NI 43-101") Technical Report for the Chambers Settlement Gold Project ("Chambers Settlement" or the "Project") located in New Brunswick, Canada. Alma Gold is a wholly-owned subsidiary of Red Lake Gold Inc. ("Red Lake Gold"). Red Lake Gold is a publicly-traded exploration company based in Vancouver, Canada. The term "Alma Gold" is used for the purposes of this current report to collectively make reference to both Red Lake Gold and its subsidiary Alma Gold.

Alma Gold has executed an option agreement to acquire a 100% interest, less the below described NSR, in the Project from Avalon Gold Resources Inc. ("Avalon Gold"), an arm's-length party based in Toronto, Ontario, Canada. The Project is comprised of two mineral claim groups (Right Number 9107 and 9108) currently owned by Avalon Gold. The Project has had recent exploration completed by Avalon Gold with follow-up work planned by Alma Gold. The terms of the Project option agreement involve a series of cash payments over a four-year earn-in period, and the granting of a 2% Net Smelter Return royalty (NSR), half of which may be re-purchased by Alma Gold.

This technical report summarizes the work completed by previous owners of the Chambers Settlement mineral claims with respect to historical mining activities and surface exploration work. The Project is considered an "early stage exploration property", with the most recent exploration work being completed by Avalon Gold in 2019. Alma Gold had not completed any exploration or drilling on the Project as of the effective date of this technical report.

#### 2.2 Qualified Persons

The report author (Paul Ténière) is a Professional Geologist (P.Geo.) registered in the Province of New Brunswick and Ontario and is an employee of Mercator, which has its head office in Dartmouth, Nova Scotia, Canada. The report author has prepared this technical report after reviewing historical exploration work and assessment reports completed on the Project. In addition, the report author completed a personal inspection (site visit) of the Chambers Settlement Gold Project on June 25, 2020.

The report author is an independent Qualified Person (QP) as defined by NI 43-101 and is responsible for all sections of this report. Neither Mercator, nor the author of this report, has any material present or contingent interest in the outcome of this report, nor do they have any financial or other interest that could be reasonably regarded as being capable of affecting their independence in the preparation of this report. This technical report has been prepared in return for professional fees based upon agreed commercial rates and the payment of these fees is in no way contingent on the results of this report. The report author is not a director, officer or other direct employee of Red Lake Gold and its subsidiary Alma Gold, or of Avalon Gold, and does not have shareholdings in any of these companies.



#### 2.3 Personal Inspection (Site Visit) and Data Verification

The report author completed a personal inspection (site visit) of the Chambers Settlement Gold Project on June 25, 2020. This site visit was completed for the purposes of site inspection, ground truthing, review of historical field activities and to satisfy NI 43-101 "personal inspection" requirements. During his personal inspection, the report author visited claim groups 9107 and 9108, which comprise the Chambers Settlement Gold Project and verified the geology, mineralization, local infrastructure, and accessibility into the project area for future exploration activities by Alma Gold.

During the site visit the report author completed the following tasks and inspections:

- Verified the extent of the alteration and mineralization from the central part of the project area (adjacent to the Chambers Settlement mineral occurrence) to the northeast and southwest regions within both claim groups;
- Field reconnaissance of above-mentioned claim groups including verifying roadside and stream geology/mineralization and access into the project area via J.D. Irving (JDI) owned forestry roads; and
- Reviewed the data and quality assurance/quality control (QAQC) procedures for the historical exploration programs, with a focus on the recent Avalon Gold exploration activities on claim groups 9107 and 9108 in 2019.

The report author visited a total of 10 locations on claim groups 9107 and 9108 (Figure 2-1). Table 2-1 describes the site locations and includes observations on the geology and mineralization.

Table 2-1: Site visit locations – June 25, 2020

Stop	UTM NAD83 Easting (m)	UTM NAD83 Northing (m)	Elev (m)	Claim No.	Comments
1	322578	5059574	374	9107	mafic volcanic, argillic schist, dark grey, no visible sulphides or mineralization
2	322200	5059150	364	9107	mafic volcanic, chlorite schist, green-grey, no visible sulphides or mineralization, however alteration present
3	322151	5059271	361	9107	mafic volcanic, chlorite schist, green-grey, subcrop/large boulder, alteration present
4	324455	5060914	355	9107	gravel pit, thick overburden comprised of glacial till deposits, well rounded boulders of mafic volcanics and granite
5	323037	5055841	360	9108	subcrop and boulders only, very thick overburden in this region, mafic volcanics including tuffs dominant lithology, minor sulphides in boulders includes traces of pyrite (Py) and chalcopyrite (Cpy)
6	322049	5055580	314	9108	thick overburden, no outcrops visible, boulders are dominantly mafic volcanic rocks
7	322093	5055327	304	9108	outcrop on side of forestry road, chlorite schist, no visible mineralization present but confirms presence of mafic volcanic and alteration



8	330463	5066619	329	9107	northern region of Claim 9107; boulders only; thick overburden with boulders comprised of tuffs and other mafic volcanic rocks
9	331017	5068979	325	9107	northern region of Claim 9107, subcrop of mafic volcanic, no visible sulphide mineralization
10	331634	5069155	290	9107	northern region of Claim 9107, outcrop on side of forest road near bottom of creek valley, mafic volcanic and crystal tuff with no visible sulphide mineralization

Notes: all site coordinates are in UTM NAD83 Zone 20 and determined using a Garmin GPSMap 64s handheld GPS receiver. Elevations are in metres and also taken from a handheld GPS receiver.

The personal inspection completed by the report author on June 25, 2019 confirmed the following:

- The visible presence of sulphide mineralization at low concentrations (<2%) in outcrops adjacent to the mineral occurrence and outward along a northeast-southwest trend (interpreted fault zone) into Claims 9107 and 9108;
- The visible presence of mafic volcanic rocks and significant alteration within a possible epithermal setting as described in previous historical assessment reports and confirmed by recent work by Avalon Gold (Figure 2-2); and
- Significant new road builds into the claim groups to allow better access for future exploration activities by Alma Gold (Figure 2-3). These logging roads appear to have been upgraded by private landowner JDI within the past 12 months commencing off Route 114 (Morton Road) and transecting the two claim groups in a north-south direction, while intersecting numerous east-west trending logging roads and trails. This will allow excellent access into the central parts of the claim groups for future soil and stream sediment sampling, ground geophysics programs (i.e. IP-Mag-EM), and drilling activities. These new logging roads are open to the public, contain mile markers, are not gated and allow access year-round with 4x4 trucks and/or off-road vehicles (i.e. ATV or snowmobile).

In addition, based on a detailed review of the available historical rock, soil, and stream sediment sampling data, geophysical data, and QA/QC procedures, including exploration programs recently completed by Avalon Gold, the report author is satisfied this meets the data verification requirements under NI 43-101. The Avalon Gold field programs were generally designed according to CIM Mineral Exploration Best Practice Guidelines and no issues or fatal flaws were detected during the personal inspection.

Figure 2-1: Site Visit Location Map Chambers Settlement Project

mercator

Date: Jul 2020

2602500E



Water Body

Mineral Claim

Other
Doug Stewart

Avalon Gold Resources Corp

Chambers

9108

Settlement

**Au Occurrence** 

Figure 2-1: Site Visit Location Map – Chambers Settlement Gold Project

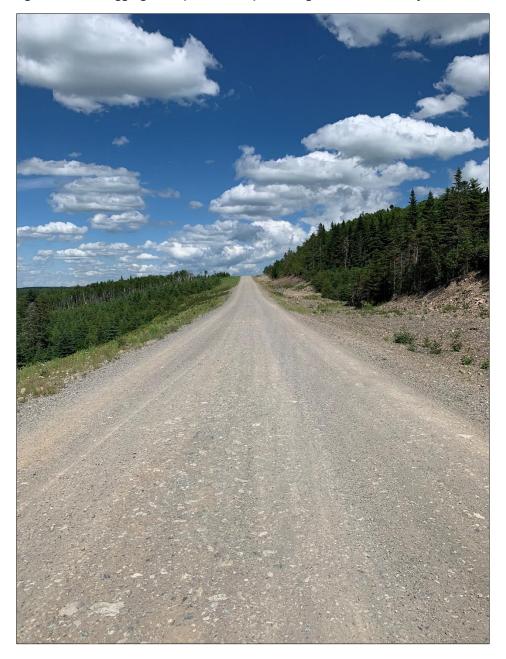


Figure 2-2: Chlorite schist (mafic volcanic) with visible alteration





Figure 2-3: JDI logging road (Morton Rd) allowing full access to Project





#### 2.4 Information Sources

Sources of information, data and reports reviewed as part of this technical report can be found in Section 27 (References). The report author (Qualified Person) takes responsibility for the content and believes the data review to be accurate and complete in all material aspects.

Exploration claim information, historical assessment reports, and exploration data were either acquired by Mercator via third party sources or provided to Mercator by Alma Gold via email. Historical exploration data was loaded into a QGIS database and validated by Mercator staff prior to evaluation and reporting.

### 2.5 Table of Abbreviations

Abbreviation	Meaning					
3D	three-dimensional					
AA	atomic adsorption					
Alma Gold	Alma Gold Inc.					
ALS	ALS Global Laboratories					
Avalon Gold	Avalon Gold Resources Inc.					
CALA	Canadian Association for Laboratory Accreditation					
CIM	Canadian Institute of Mining and Metallurgy					
DEM	digital elevation model					
DGPS	differential global positioning satellite					
EL	exploration licence					
EM	electromagnetic					
FA-AA	fire assay-atomic absorption					
GPS	global positioning satellite					
GSC	Geological Survey of Canada					
g/t	grams per tonne					
ICP-OES	Inductively Coupled Plasma Optical Emission Spectrometry					
IP	Induced Polarization					
LiDAR	light detection and ranging					
Mercator	Mercator Geological Services Ltd.					
Mt	millions of tonnes					
NI 43-101	National Instrument 43-101					
NBDNR	New Brunswick Department of Natural Resources and Energy Development					
NSR	net smelter return (royalty)					
OZ	ounce					
P.Geo.	Professional Geologist					
ppb	parts per billion					
ppm	parts per million					
QAQC	quality assurance and quality control					
QP	Qualified Person					
RC	reverse circulation					
UTM	Universal Transverse Mercator					
VLF-EM	very low frequency electromagnetic					
k	thousand ° degree symbol					



Ma	million	%	percent	
Ga	billion	Ва	Barium	
ca	circa	PGE	Platinum Group Elements	
et al.	and others	REE	Rare Earth Elements	
С	Celsius	Pb	Lead	
ha	hectare	Pd	Palladium	
kg	kilogram	Au	Gold	
km	kilometre	Ag	Silver	
lbs	pounds	As	Arsenic	
ft	foot	Cu	Copper	
Ш	inch	Ni	Nickel	
μm	micrometre	Zn	Zinc	
m	metre	Fe	Iron	
mm	millimetre	Mg	Magnesium	
cm	centimetre	K	Potassium	
ml	millilitre	Th	Thorium	
/	per	Co	Cobalt	
g	gram (0.03215 troy oz)	Pb	Lead	
OZ	troy ounce (31.04 g)	Bi	Bismuth	
Oz/T to g/t	1 oz/T = 34.28 g/t	Ca	Calcium	
st	short ton (2000 lb or 907.2 kg)	ppm	parts per million	
ppb	parts per billion	t	tonne (1000 kg or 2204.6 lb)	



#### 3.0 RELIANCE ON OTHER EXPERTS

Mercator is relying upon information provided by Red Lake Gold and its subsidiary Alma Gold concerning any legal, political, environmental, or any royalty matters relating to the Chambers Settlement Gold Project. Mercator has acquired mineral titles information on the two mineral claims that are the subject of this technical report from the New Brunswick Department of Energy and Resource Development electronic database of mineral titles (known as "NB e-CLAIMS"). Mercator has also been provided scans of any royalty and purchase agreements related to the properties, however Mercator has not independently verified the status of, nor legal titles relating to, the mineral claims and licences.

No warranty or guarantee, be it express or implied, is made by Mercator or the authors with respect to the completeness or accuracy of the legal aspects of Chambers Settlement.



#### 4.0 PROPERTY DESCRIPTION AND LOCATION

#### 4.1 Property Location and Description

Alma Gold has executed an option agreement to acquire a 100% interest in Chambers Settlement from Avalon Gold. The Project is comprised of mineral claim groups 9107 and 9108 (320 claim units) registered under Avalon Gold (Table 4-1) and is approximately 72,154 hectares in size. The two mineral claim groups are located in Kings County, New Brunswick, approximately 25 km east of the town of Sussex. The Project is centred at map coordinates 232,200 m Easting and 5,059,060 m Northing (UTM NAD83 Zone 20N) within NTS Map Sheet 21H/11 (Figure 4-1).

Table 4-1: Mineral Claims Table for Chambers Settlement Gold Project

Claim Number	Claim Group Name	Registered Owner	Number of Claim Units	Issue Date	Expiry Date	Area (Ha)
9107	Chambers Settlement NE	Avalon Gold Resources Inc. (100%)	220	2019-03-19	2022-03-19	49,575
9108	Chambers Settlement S	Avalon Gold Resources Inc. (100%)	100	2019-03-19	2022-03-19	22,579
			320			72,154

The New Brunswick Department of Energy and Resource Development electronic database of mineral titles known as "NB e-CLAIMS" (<a href="http://nbeclaims.gnb.ca/nbeclaims">http://nbeclaims.gnb.ca/nbeclaims</a>) confirms that all mineral claims comprising the Chambers Settlement Gold Project as described above in Table 4-1 are in good standing after approval of submitted assessment reports as of the effective date of this report, and that no legal encumbrances were registered with New Brunswick Department of Energy and Resource Development against these mineral claims. The report author has confirmed that payment of exploration licence renewal fees associated with the pending renewals identified in Table 4.1 has been documented in NB e-CLAIMS. The report author makes no further assertion concerning the legal status of the properties. None of the properties have been legally surveyed to date and there is no requirement to do so at this time.

## 4.2 Option Agreements and Royalties

The terms of the Project involve a series of cash payments to Avalon Gold totaling over a four-year earn-in period and the granting of a 2% Net Smelter Return (NSR) royalty, half of which may be re-purchased by Alma Gold (source: June 4, 2020 news release issued by Red Lake Gold Inc.).

The report author is not aware of any other back-in rights, payments, or other agreements or encumbrances to which the Chambers Settlement claims may be subject.

#### 4.3 Surface Rights and Permitting

As defined under the *Mining Act (New Brunswick)* ("Mining Act"), most minerals are owned by the Crown, however, some land grants reserved only specific minerals to the Crown and therefore other minerals



were, in fact, transferred to the grantee. Prior to 1810, it was common for gold and silver, and a few other minerals to be reserved to the Crown. The Mining Act defines a mineral as any natural, solid, inorganic, or fossilized organic substance, and such other substances as are prescribed by regulation to be minerals, but does not include:

- Sand, gravel, ordinary stone, clay or soil unless it is to be used for its chemical or special physical properties, or both, or where it is taken for contained minerals;
- Ordinary stone used for building or construction;
- Peat or peat moss;
- Bituminous shale, oil shale, albertite, or intimately associated substances or products derived therefrom;
- Oil or natural gas; or
- Such other substances as are prescribed by regulation not to be minerals.

Crown-owned minerals are property separate from the soil; that is, a landowner owns the surface rights but does not own mineral rights, unless some minerals were granted with the land and each conveyance since the granting has preserved the ownership of those minerals. By means of the Mining Act, the province makes Crown-owned minerals available for exploration and development. Prospectors (persons or companies that hold prospecting licences), holders of claims, and holders of mining leases have the right to prospect, explore, mine, and produce those minerals, whether they are on Crown-owned or privately-owned lands. They also have the right of access to the minerals; however, they are liable for any damage they cause.

All Crown-owned minerals are available for prospecting and staking except in:

- Lands withdrawn from staking for all or certain minerals, e.g., coal and potash are currently withdrawn from prospecting and staking;
- Lands already staked or leased;
- First Nations reserves. Minerals in First Nations reserves are administered through the Indian Act of Canada; and
- National and Provincial Parks, Protected Natural Areas, and Military Lands.

Mineral claim acquisition in New Brunswick is an online process (NB e-CLAIMS) and can be completed by selecting mineral claim units ("claim units") from an interactive map or by inputting claim unit numbers in the application. For acquisition, the minimum size of a claim is 1 unit and the maximum number of units in a claim should not exceed 256 contiguous available units. To fully benefit from all the options available via NB e-CLAIMS, holders of earlier ground staked claims should convert their titles to the current map staked system of claim units and claims. Conversion of ground staked mineral claims to map staked claims is to be voluntarily completed until such time as the Recorder's office will control any outstanding conversions.

Mineral claim unit renewal fees and yearly work requirements are summarized in Table 4-2 below.



Table 4-2: Amount of Assessment Work Required Per Mineral Claim Unit (Mines Act)

Service Type	Description	Fee/Charge (\$)
	1 to 5	10
Renewal Fees	6 to 10	20
	11 to 15	30
	16 and more	50
	Grouping ≥2 contiguous Mineral Claims into 1 group (per resulting group)	20
	Transfer (all or part per Mineral Claim Unit)	10
Other Fees	Notice of dispute (per Mineral Claim)	20
	Payment in lieu of required work in the first year of a Mineral	20
	Claim Unit	
	(per Mineral Claim Unit)	
Mineral Claim	Year 1	100
Work	Year 2	150
Expenditure	Year 3	200
Requirement	Year 4	250
(per Mineral	Year 5 to 10	300
Claim Unit and	Year 11 to 15	500
per year)	Year 16 to 25	600
	Year 26 and over	800

Land access permission is required from surface rights holders in New Brunswick before mineral exploration activities can be undertaken. Surface titles to lands covered by the Chambers Settlement Gold Project are held by various private landowners or the Province of New Brunswick (the latter, being the "Crown"). For both Crown land and private land, mineral exploration licence holders must come to an agreement with the landholder in order to gain the right to access and be able to conduct exploration work on the land.

For work on Crown Land it is necessary to submit a Notice of Planned Work on Crown Land – Form 18.1 to the Recorder (New Brunswick Regulation 86-99 under the *Mining Act*, s.20.1). The Recorder will review the submitted form and, in most cases, will grant permission on behalf of the Department of Natural Resources and Energy Development. In some cases, the Recorder will advise the claim holder that a reclamation plan and security are required before work can commence. If work is to be conducted on a Crown Land Lease, the claim holder needs to obtain permission from the Lessee (*Mining Act*, 1985 s.110).

For Private Land, a claim holder needs to contact the landowner as soon as possible after staking and advise of such. A Notice of Planned Work on Private Land - Form 18 (New Brunswick Regulation 86-99 under the *Mining Act*, 1985 s.20) must be delivered to the landowner if intrusive work of any kind is planned. A copy of the completed Form 18 must also be submitted to the Recorder indicating how and when the landowner was notified. The claim holder must attempt to reach an agreement with the landowner regarding any intrusive work issues such as damage and/or interference with use and



enjoyment of the land, including plans for reclamation. If the claim holder is unable to contact the landowner, it is necessary to notify the Recorder that a reasonable effort to do so has been made. If the claim holder is unable to reach an agreement with a landowner within 60 days of contact, work may be done after a security is deposited with the Recorder. The claim holder is required to notify landowners prior to each year of work (*Mining Act*, 1985 s.110).

Special permission from a landowner or appropriate authority is required prior to causing actual damage to, or interference with the use and enjoyment of the following lands: lands in cities, town and villages, lands occupied by railway stations and switching yards and railway rights of way, lands within the boundaries of a public highway, lands occupied by a building or a public highway, lands occupied by a building or curtilage thereof, gardens and cultivated lands and other lands that are prescribed by regulation

#### Reference:

https://www2.gnb.ca/content/gnb/en/departments/erd/energy/content/minerals/content/Minerals exploration/LandAccessAndUse.html.

#### 4.4 Permits or Agreements Required For Recommended Future Exploration

Chambers Settlement is located on Crown land and private forestry lands owned by J.D. Irving Ltd. and Rothesay Paper Holdings Ltd. (combined the "Irving Lands") and Alma Gold will need to negotiate a customary surface land access agreement with each of these interests to complete any future, surface-disturbing exploration work on the mineral claims such as ground geophysical surveys requiring line cutting, trenching and all drilling activities. These customary land access agreements would cover any land disturbance or other damage associated with the intended exploration work and need to be renewed on a regular basis. However, if no land disturbance or tree cutting is required, such as for geological mapping and soil and stream sampling programs, a notice of planned work is expected to be sufficient.

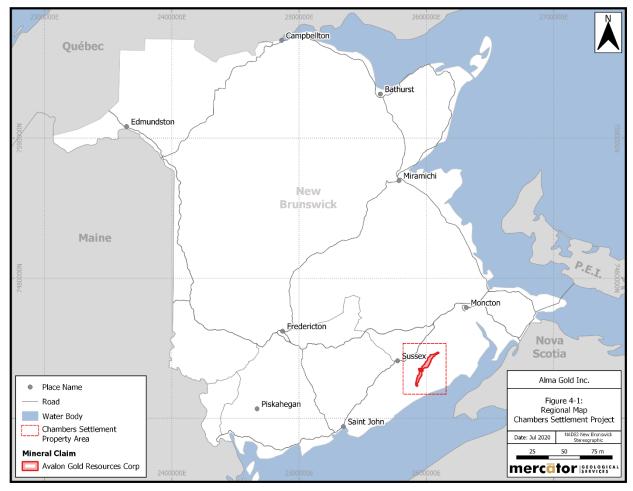
Alma Gold has advised that has not entered into any land access agreements with J.D. Irving Ltd. and Rothesay Paper Holdings Ltd. and the Crown as of the effective date of this technical report. It will be necessary to establish such customary agreements to carry out various components of the future exploration work recommended in this technical report.

#### 4.5 Other Liability and Risk Factors

The report author is not aware of any environmental liabilities on the property. As noted above, Alma Gold will require permits to conduct the proposed work on the property. The report author is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the recommended work program on the property.



Figure 4-1: Regional Map – Chambers Settlement Gold Project





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

#### 5.1 Accessibility

The Chambers Settlement Gold Project is located in southern New Brunswick, approximately 80 km southwest of the City of Moncton (pop. 114,810) and 91 km northeast of the City of Saint John (pop. 68,000). The closest international airport is the Greater Moncton Roméo LeBlanc International Airport (YQM) located approximately 10 km east of downtown Moncton. Regional airline service (Air Canada and Porter Airlines) is also available from Saint John Airport (YSJ) with daily direct flights from Halifax, Montréal, and Toronto. The properties can be easily be accessed via New Brunswick Route 1 (four-lane controlled access highway) and then departing at Exit 211 (Penobsquis-Alma-Fundy National Park exit) and heading east on Route 114 towards Fundy National Park. After approximately 11 km turn right onto the Morton Road (forestry road) and travel another 10 km on JDI forestry roads to reach the Chambers Settlement Gold Project (Figure 5-1). Several small forestry roads and multi-use trails located on Crown and private lands allow excellent access into claims 9107 and 9108 via truck, all-terrain vehicle or by foot in the Mechanic Settlement area, east and west of Route 114. The closest town to offer full services is Sussex, NB approximately 20 km northwest of the Project off Route 1. The town of Sussex includes full-service accommodations, grocery stores and restaurants, shopping centres, hardware stores, and gas stations.

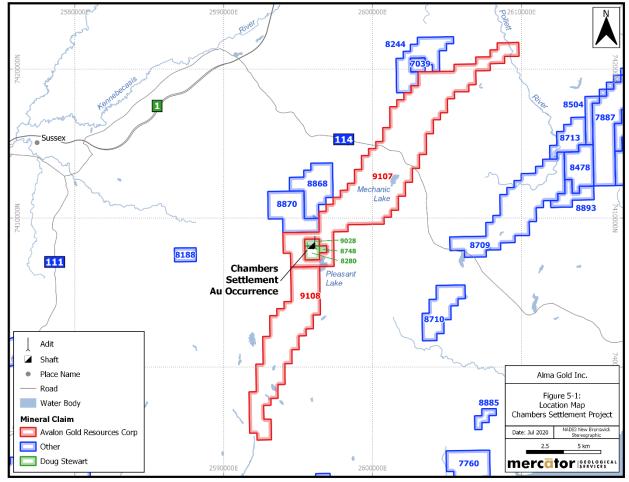
#### 5.2 Climate and Physiography

The Chambers Settlement Gold Project is located in the temperate zone of North America, and although the property is within 30 km of the ocean (Bay of Fundy), climatic conditions are more humid continental, governed by the eastward flow of continental weather patterns. The average annual temperature is approximately 10°C, with an average summer maximum of 30°C and an average winter minimum of -30°C. Winter conditions are prevalent on site from late October or early November until mid to late April. Frost depth is 2.0 m. Annual precipitation is approximately 1,000 mm with 60% of this occurring as rain and the remainder as snow. Mineral exploration field programs can efficiently be undertaken from May through to late November in all areas. Winter programs such as drilling and geophysical surveys can also be implemented year-round but delays due to poor winter weather conditions such as heavy snow fall should be expected.

Topography is typically characterized by rolling hills and rounded mountains that comprise the Caledonian Highlands in southern New Brunswick. In between these hills, glacial till cover predominates with local bedrock exposures present intermittently as bedding-parallel ridges that conform with the east to northeast regional bedrock structural grain. Areas of locally derived glaciofluvial material (sand and gravel) are also present and overburden thickness typically ranges between 0 and 20 metres or more in depth. Topographic elevations on the claims vary between 250 to 375 metres above sea level. Surface drainage systems consist of abundant small lakes, rivers and streams that commonly show northwest-southeast orientations that reflect regional bedrock jointing and faulting trends and associated glacially developed bedrock scours.



Figure 5-1: Location Map – Chambers Settlement Gold Project





#### 5.3 Local Resources and Infrastructure

The Chambers Settlement Gold Project is located in a region of southeastern New Brunswick that is sparsely populated, with motels, medical services, hardware stores, grocery stores, and gas stations being confined primarily to the town of Sussex and village of Alma 30 km to the southeast. Greater Moncton forms the largest population center of the province (approx. 115,000) and supports a wide range of government, business, medical, educational, industrial and transportation services. Access to the regional electrical grid is possible along the Route 114 highway corridor that crosses through the Chambers Settlement Gold Project but is lacking in more remote areas. Mainline rail facilities are available in a corridor extending from Moncton to Saint John and into the USA, and year-round, deep-water shipping facilities, including container port services are available through the Port of Saint John.

The extensive surface drainage systems present across southern New Brunswick typically provide readily accessible potential water sources for incidental exploration use such as diamond drilling. They also provide good potential as higher volume sources of water such as those potentially required for future mining and milling operations.

Exploration staff and consultants, as well as forestry, heavy equipment and drilling contractors can be readily sourced from within New Brunswick and surrounding provinces such as Nova Scotia and Quebec. Forest harvesting operations are the dominant employment in the region with JD Irving being a major employer in southern New Brunswick. The local rural and urban economies provide a large base of skilled trades, professional, and service sector support that can be readily accessed for exploration and resource development purposes.



#### 6.0 HISTORY

#### 6.1 Pre-2019 Exploration Work

Minimal historical exploration work has occurred on the Chambers Settlement Gold Project prior to Avalon Gold's acquisition of claims 9107 and 9108 in March 2019. Historical assessment work has mainly been limited to adjacent claims 8748, 8280, and 9028 owned by prospector Doug Stewart (DS Explorations Ltd.) over the Chambers Settlement gold occurrence and other small prospecting programs in the northern portion of claim 9107.

Historical work in the immediate area includes the Watson silver and gold mine shaft and horizontal adit completed by the New Brunswick Silver and Gold Mining Company during the 1880's (Martin, 2006), which is now referred to as the Chambers Settlement gold occurrence and located on adjacent claims owned by DS Explorations Ltd. Historical records indicate that the mine shaft in the area was sunk to a depth of at least 100 ft in search of silver, copper, and gold (source: NB Mineral Occurrence Database – reference number 1429).

Noranda Exploration Canada Ltd. ("Noranda") completed exploration work in the area in 1969 including soil and stream silt sampling, ground geophysical surveys, and geological mapping (Logan, 1969). Anomalous silt samples (maximum 84 ppm Cu) were collected southwest of the gold occurrence and copper soil anomalies (600 to 1800 ppm Cu) were identified west of the gold occurrence. Magnetic anomalies were also identified, including a moderate to strong anomaly in the northwestern portion of the project area.

The Geological Survey of Canada ("GSC") collected stream sediment samples within in the area in 1986 as part of a regional survey (Martin, 2006). One sample was anomalous in gold only (4-27ppb range) and another was anomalous in gold (4-27ppb range) and copper (60-168ppm range). Another sample taken from a brook in the northwest portion of the project area was anomalous in copper.

Corona Corp. ("Corona") conducted soil sampling within the northwestern part of the project area in 1989 (Martin, 2006). Copper and gold B-horizon soil anomalies were reported with maximum values of 594 ppm Cu and 33 ppb Au.

Geodex Minerals Ltd. ("Geodex") completed exploration work in the project area between August 2004 and May 2006. Like the previous workers noted above, Geodex was mainly focused on exploring near the Chambers Settlement gold occurrence and adjacent to the historical Watson mine workings. Geodex completed very low frequency electromagnetic (VLF-EM) surveys, mobile metal ion (MMI) soil geochemistry surveys, trenching, and geological mapping (Martin, 2006). The Geodex program outlined intense alteration zones and gold presence around the historical Watson mine workings through Mobile Metal Ion (MMI) program results and an associated northeast trending VLF-EM survey conductor. Trenching and prospecting returned results up to 1,032 ppb Au from grab samples of rock rubble near the adit, and several other anomalies of lead, zinc, copper, and molybdenum in rock grab samples were also identified (Martin, 2006).



#### 6.2 Avalon Gold Resources Inc.

Since acquiring claims 9107 and 9108 in March 2019, Avalon Gold has completed the following exploration activities between May 2019 and December 2019 on the Chambers Settlement Gold Project, as reported by Burke (2020a, 2020b):

- Historical compilation and digitization;
- Ground magnetics survey;
- Soil, stream, and rock geochemistry surveys;
- Detailed field mapping programs; and
- Geostatistical analysis and interpretation of multi-element geochemistry data gathered from these surveys.

#### **6.2.1** Ground Magnetometer Survey

In 2019, Avalon Gold completed a ground magnetometer survey focused over the central part of the project area within claim groups 9107 and 9108 and adjacent claims with a total of 118 line km completed (Figure 6-1) (Burke, 2020a; 2020b). Five distinct magnetic zones were established by Avalon Gold as indicated in Figure 6-1. Zone 1 and 2 define a sharp contact from the volcanic mafic units into hydrothermally altered schist, adjacent to the major NE-SW trending fault, potentially indicating the presence of intense alteration and silicification that are known to characterize the main Chambers Settlement mineralized zone.

Zones 1 to 3 appear to be cut by E-W faults represented in field mapping and geological interpretations by Avalon Gold (Figure 6-1). Zones 3 and 4 are more ambiguous and appear to correlate with regional scale volcanic units. Avalon Gold inferred that the magnetic high located in this area could: (1) be related to mafic volcanic rocks following a larger E-W fault contact (Figure 6-2), (2) represent a possible intrusion into Zone 3, or (3) represent an area of more intense alteration, with a greater concentration of Fe/Mn oxide and hydroxide minerals being present. The magnetic highs are also elongated, narrow and discontinuous, which have been interpreted as representing variable alteration assemblages rather than igneous intrusions of differing compositions. Alteration in Chambers Settlement may be controlled by these primary, NE-SW trending vein/fault systems.

Zone 5 (Figure 6-1) in the southern part of the survey area contains an intense magnetic low in the centre of the structure in comparison to the highly magnetized margins. Avalon Gold inferred that this may represent the presence of a vein or fracture system surrounded by an alteration halo located at the centre of claim group 9108. The type or composition of this alteration could not be determined by the magnetic survey, but silicification sometimes reduces the magnetic susceptibility of a rock unit. Avalon Gold noted that this anomaly occurs below a larger inferred fault crossing the claim group where stream sediment and rock samples results indicated elevated Mo, Ag, Te and Se presence and locally elevated Cu and Au levels.



322000 324000 Chambers Settlement Au Occurrence Magnetometer Survey Grid Area Chambers Ground Magnetic Survey 1 km 5) Projection: NAD83 UTM 20N 322000 324000

Figure 6-1: Avalon Gold 2019 Ground Magnetometer Survey (reduced to pole)



322000 324000 Chambers Settlement Au Occurrence Magnetometer Survey Grid Area Chambers Ground Magnetic Survey Projection: NAD83 UTM 20N 324000

Figure 6-2: Inferred faults based on ground magnetometer survey (analytic signal)



#### **6.2.2** Stream Sediment Survey

Avalon Gold collected a total of 100 stream sediment silt samples between June and August 2019 across the entire Chambers Settlement Gold Project (Burke, 2020a; 2020b). The highest gold result returned was 0.03 ppm Au located south of the Chambers Settlement mineral occurrence (Figure 6-3). The highest silver result was 0.99 ppm Ag located just below an interpreted E-W fault in claim 9108 adjacent to the ground magnetics low and a suspected alteration halo (Figure 6-4). High Mo results (15.6 ppm) and Se values were also recorded in this region, which Avalon Gold interpreted as indicating proximity to a potential alteration or silica cap. Overall results for Au and Te were not significant, except for locally high Au and Cu results immediately north and downstream from the Chambers Settlement mineral occurrence. Elevated Ag results were also returned in two areas within claim 9107 (Figures 6-4). Elevated Mo results correlate in part with elevated Ag.

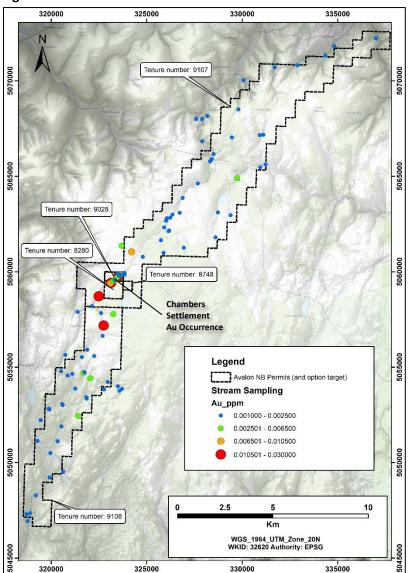


Figure 6-3: Au stream sediment results



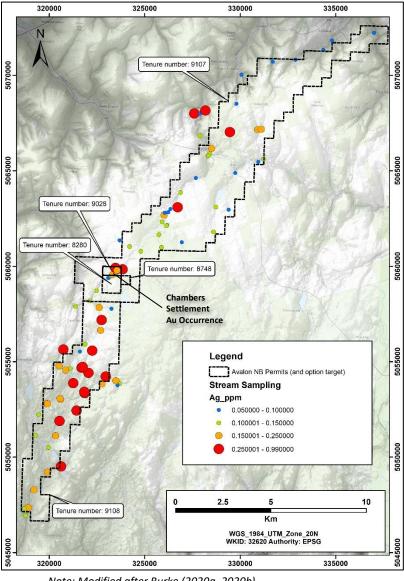


Figure 6-4: Ag stream sediment results

#### 6.2.3 **Historical Data Compilation and Soil Sampling Survey**

In addition to collecting new B horizon soil samples in Chambers Settlement, Avalon Gold also completed a re-interpretation of historical soil, rock and stream sediment geochemical data and completed in-depth geostatistical analyses of these combined datasets from November 2019 to January 2020 (Burke, 2020a; 2020b).

Historical data points were limited but did indicate N-NE trending anomalies. Figure 6-5 displays Au occurrences in soil from Avalon Gold's 2019 soil survey. Figures 6-6 to Figure 6-8 display Au, Mo and Ag with outlined (interpreted) anomalies of Bi and Te in soil. Anomaly thresholds for Au, Mo, and Ag are indicated in the figures below. Anomaly thresholds for Bi and Te are also indicated in the figures below. Bedrock gold mineralization identified to date in the grid area occurs within the overlapping fields of



323000 323500 9107 9028 Legend Avalon NB Permits (and option target) 5059500 Old workings Type Adit ✓ Shaft Chambers Historical soil sampling - 2004 Settlement Au Occurrence Au\_ppb 2.500000 2.500001 - 5.000000 5.000001 - 7.000000 8280 5059000 7.000001 - 9.000000 Historical soil sampling - 2006 Au\_ppm <u>\*</u> 0.050000 ▲ 0.050001 - 0.100000 ▲ 0.100001 - 0.300000 0.300001 - 1.500000 Avalon soil samples - 2019 Avalon soil samples - 2019 5058500 Km WGS\_1984\_UTM\_Zone\_20N WKID: 32620 Authority: EPSG 323000 323500 324000

Figure 6-5: Historical B horizon soil data compilation



322000 322500 323000 323500 5060500 9028 9107 Chambers 8748 Settlement Au Occurrence 5059000 8280 Legend 5058500 Avalon NB Permits (and option target) Te soil anomalies Bi soil anomalies Soil samples Au\_ppm -0.001000 - 0.000000 0.000001 - 0.002000 0.002001 - 0.007000 9108 0.007001 - 0.015000 0.25 Km WGS\_1984\_UTM\_Zone\_20N WKID: 32620 Authority: EPSG 322500 323000 322000 323500

Figure 6-6: Au in B-horizon soil with Bi and Te anomalies



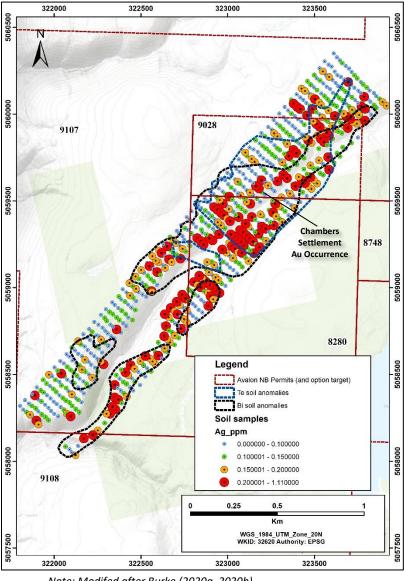


Figure 6-7: Ag in B-horizon soil with Bi and Te anomalies

Note: Modifed after Burke (2020a, 2020b)

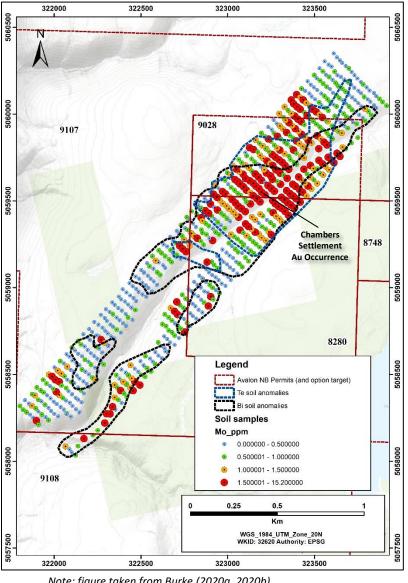


Figure 6-8: Mo in soil with Bi and Te anomalies

Note: figure taken from Burke (2020a, 2020b)

anomalous Bi and Te. Elevated Bi values appear to occur within the mapped chlorite schist unit which mainly hosts the alteration and mineralization evident in Chambers Settlement.

The 2019 B-horizon soil sampling survey by Avalon Gold was completed during two separate phases and consisted of a total of 1,035 soil samples including 22 field duplicates for QAQC purposes. Soil samples were submitted to the ALS Global (ALS) preparation facility in Moncton, NB with subsequent gold analysis and multi-element ICP analysis at other ALS facilities. After drying and sieving, a 30-gram split of material was analyzed for gold using FA-AA methods. A second pulp split was prepared for multi-element analysis by Inductively Coupled Plasma (ICP) methods after four acid digestion. ALS is a commercially operated analytical services firm that is accredited by the Canadian Association for Laboratory Accreditation (CALA) and registered to ISO 17025 standards for specific procedures and is also independent of Avalon Gold. Soil samples collected in proximity to the NE-SW stream stretching throughout the property were considered



alluvium and isolated from the database. Soil sample results were first reviewed by Avalon Gold geologists to determine their quality and to check for data inconsistencies.

## 6.2.4 Principal Component Analysis (PCA) of Soil Geochemistry Data

Between December 2019 and January 2020, Mercator completed a Principal Component Analysis ("PCA") study of the Avalon Gold soil geochemistry dataset. The resulting project description and data interpretation as presented in Burke (2020a, 2020b) is summarized below.

PCA is a multivariate statistical technique that linearly transforms correlated variables into principal components that represent greatest variability within the dataset. PC1 is oriented in the direction of greatest variability within the data population. PC2 represents the direction of second greatest variability orthogonal to PC1. Each subsequent principal component (e.g., PC3, PC4, etc.) represent the next greatest variability orthogonal to the previous principal components. A total of 19 elements were included in the PCA: Au, Ag, Al, As, Bi, Ca, Cu, Fe, K, Mg, Mn, Mo, Na, Pb, Sb, Te, Ti, Zn and W. The mapping feature in ioGAS was used to plot the distribution of each statistically significant Principal Component (PC) to look for trends within the soil geochemistry dataset.

Five significant principal components (PC1 to PC5) were identified in the PCA analysis showing relatively similar results between the two phases of the Avalon Gold soil survey. The five components account for approximately 67 to 69% of the variability within the data population. PC1 is interpreted to relate to major changes in the mineral composition of samples and could reflect changes in bedrock underlying till. PC2 is associated with the presence of trace gold in soil samples. PC1 shows a positive correlation between the major elements Al, Ca, K, Mg and Mn along with some associated trace elements (Cu, Zn) which may correlate to an interpreted contact between the chlorite schist that hosts alteration and the mafic volcanic and phyllites to the north and south (Figure 6-9). A similar distribution was observed when plotting absolute Cu concentrations. These features in soil could potentially be applied as a marker for contact boundaries elsewhere in the project area.

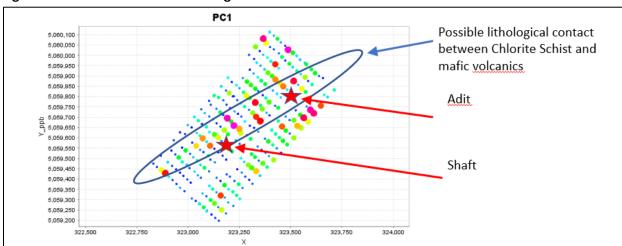


Figure 6-9: PCA Results – PC1 Lithological Contacts

Note: figure taken from Burke (2020a,2020b)



PC2 describes the correlation between Au, As, Bi, Pb, Mo and possibly Sb (Figure 6-10). Elevated PC2 values surrounding the Chambers Settlement mineral occurrence appear to confirm the association of these elements. However, this correlation should be taken with caution as it falls in part within an area of possible surface disturbance associated with historical mine workings as opposed to simply natural weathering processes. Positive PC2 clusters occurring in the second phase of the grid appear to correlate with WSW-ENE faults interpreted by Avalon. However, these suspected Carboniferous late-stage strike slip faults are currently being interpreted as corresponding to larger suspected E-W thrust faults to the north and potentially through the centre of the southern part of the project area (Burke, 2020a, 2020b).

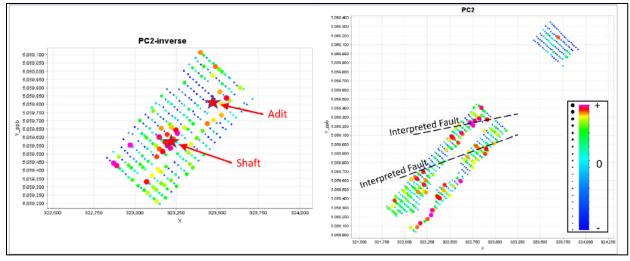


Figure 6-10: PCA Results – PC2 and Inverse Attribute Map

Note: figure taken from Burke (2020a, 2020b)

Based on the PCA modelling, elements with the strongest correlation with gold (Au) include Bi, Mo, Pb, Sb and Te. Despite Te indicating a consistent bias associated with the first phase of the soil sampling program, it could potentially act as an indicator for underlying altered bedrock on a regional scale. Its distribution also overlaps with interpreted alteration sequences observed in the limited TerraSpec rock data (discussed further below). In contrast, Cu and Zn more directly correlate with major element geochemistry (Mg, Al, Ca) than with Au, Bi, Mo, Pb and Sb. W was also plotted to further assess potential for intrusion hosted mineralization settings, but no clear association with Au was evident and distribution was inconsistent. Elevated Pb values plot along Avalon's interpreted WSW-ENE faults and correlate with general increase in S%. This trend is also apparent in the soil near the transition to Carboniferous rock cover units to the northeast.

PC3 is similar between the two phases of the Avalon soil geochemistry program and is associated with a correlation between Ag, Al, Fe, Te and W. This principal component may reflect a preferential association of Au and Ag mineralization within bedrock units. Na shares this correlation and together these elements may indicate alteration zonation similar to that seen in the TerraSpec data interpretation provided in report section 6-2-5 below.



PC4 is associated with elevated levels of W and As, is unassociated with gold levels, and highlights some interpreted faults. The occurrence of W is not directly associated with gold mineralization. Concentration of As appears to increase towards the SW portion of the soil grid.

PC-5 describes the association of Au and Ag mineralization, but only accounts for 5.5 to 6.0 % of the variability in the dataset and is less important than the Au-Bi-Mo-Pb-Sb association. However, this may show some relevance in highlighting N-S trending features, specifically within the chlorite schist unit as described above.

## 6.2.5 Rock Sampling and TerraSpec Analysis

A total of 103 prospecting and trenching rock samples were collected by Avalon Gold and sent to ALS Global for TerraSpec hyperspectral analysis (Burke, 2020a; 2020b). ALS uses a handheld mineral analyzer such as an ASD TerraSpec® 4 to determine high quality spectral mineralogy over crushed rock samples. This hyperspectral instrument provides an accurate assessment of low-concentration and low-reflectance minerals, and iron-containing minerals such as serpentines and chlorites, which were previously difficult to measure. Hyperspectral analysis is also an effective method to determine alteration mineral assemblages. Short Wavelength Infrared (SWIR) and Long Wavelength Infrared (LWIR) spectral imaging is standard for the detection of minerals in the feldspar, silica, calcite, garnet, and olivine groups, as these minerals have their most distinctive and strongest spectral signature in the LWIR regions.

The prospecting samples consisted of 43 outcrop, 8 subcrop and 45 boulder samples. 33 samples were collected along stream showings across claim 9107 and consisted of outcrop, subcrop and boulder samples. The 2019 program results include a 0.611 ppm Au value from a mineralized boulder grab sample collected downstream from the Chambers Settlement mineral occurrence. Several samples ranging from 0.044 to 0.144 ppm Au were collected from outcrop immediately north of the mineral occurrence within the known mineralized zone. No significant results for Au were present in the northern regions of claim 9107.

A qualitative evaluation of the rock assay data with the TerraSpec analysis method indicated anomalous gold mineralization could be characterized by the presence of kaolinite ± alunite ± dickite ± topaz ± pyrophyllite. Of the 45 samples with gold levels between 10 and 611 ppb Au within claim 9107, 30 contained kaolinite, 21 contained alunite, 20 contained dickite, 19 contained topaz, and 14 contained pyrophyllite. These samples consisted of quartz sericite schist, but also included some felsic to intermediate volcanic rocks and one conglomerate. Samples with gold levels greater than 10 ppb but lacking kaolinite were described as either being silicified or containing chlorite veining. Samples with chlorite veining typically have chlorite + white mica identified in the TerraSpec spectra, whereas silicified samples just have white mica identified in their spectra. Figure 6-11 displays graphical representation of alteration percentages in the collected rock samples based on the TerraSpec hyperspectral analysis. An advanced argillic zonation can be seen in the Chambers Settlement mineral occurrence area indicated by kaolinite and dickite. This is interpreted as indicating a high heat flow area (equal to or greater than 300 degrees C) and is surrounded by alunite and pyrophyllite to the north and south-east. Carbonate and

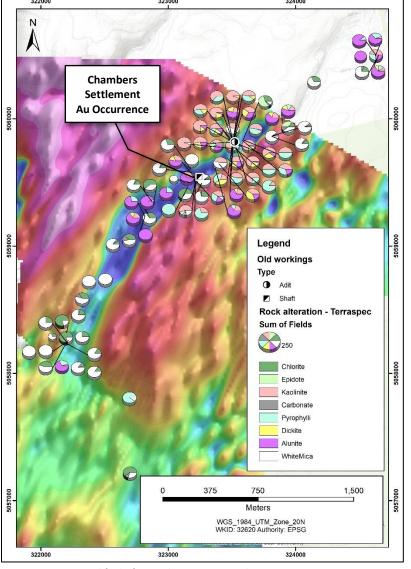


Figure 6-11: TerraSpec Results Overlying Ground Magnetic Survey Data

Note: Modified after Burke, 2020a, 2020b

chlorite dominate towards the south, as well as a suggestive break where E-W faults (Carboniferous) have been interpreted (Burke, 2020a; 2020b).

## 6.2.6 Avalon Gold - Qualifying Exploration Expenditures (2019)

The report author has reviewed the qualifying exploration expenditures by Avalon Gold disclosed in two mineral assessment reports completed in 2019 for claims 9107 and 9108 and filed with the New Brunswick Department of Natural Resources and Energy Development on March 18, 2020. These assessment reports cover the exploration work discussed above in Section 6.2 on the Chambers Settlement Gold Project and completed between May 2019 and December 2019 (Burke, 2020a; 2020b).



A total of \$130,165.25 in qualifying exploration expenditures have been completed on the Chambers Settlement Gold Project (claims 9107 and 9108) over the past 36 months as outlined in Table 6-1 below.

Table 6-1: Qualifying Exploration Expenditures on Chambers Settlement Gold Project by Avalon Gold

Qualifying Exploration Expenses (Claims 9107 and 9108) – May to Dec 2019	Amount
Geologist (contract) and up to 5 field staff for mapping, soil/stream surveys, and ground magnetometer survey work	\$54,076.72
Field, geochemistry, and geophysical equipment rental (ground magnetic survey)	\$4,680.61
Field expenses such as accommodations/meals for field staff and truck rentals to complete exploration work	\$40,954.95
Laboratory analytical costs	\$26,252.97
Reporting costs (assessment reports)	\$4,200.00
Total Exploration Expenses =	\$130,165.25

## 6.3 Historical Mineral Resource and Past Production

To date no historical mineral resource has been completed on the Chambers Settlement Gold Project. Other than the historical mining activities described above, no large-scale mining production has taken place in the project area.



#### 7.0 GEOLOGICAL SETTING AND MINERALIZATION

## 7.1 Regional Geology

The Caledonian Highlands of southern New Brunswick consist mainly of Late Neoproterozoic volcanic, sedimentary, and plutonic rocks and overlying Cambrian to early Ordovician sedimentary rocks on the eastern margin of the Appalachian Orogen, known collectively as the Caledonia terrane (Barr and White 1996, 1999a). The Caledonia terrane forms part of the larger Avalonia terrane, a composite peri-Gondwanan terrane containing segments generally recording Neoproterozoic to Cambrian histories of deposition, igneous activity, and deformation (Figure 7-1). In eastern North America, the Avalonia terrane stretches from the Avalon peninsula in eastern Newfoundland, through southeastern Cape Breton Island, Nova Scotia, the Cobequid and Antigonish Highlands of Nova Scotia, southern New Brunswick, and into Massachussets (Hibbard et al. 2006, Texidor-Carlsson, 2007). The Caledonia terrane has been interpreted as an accretionary complex on the trench side of the Broad River Group magmatic arc (White et al. 2001), indicating that subduction was to the southeast of the present-day location.

Major ductile high-strain zones cut obliquely across the Caledonia terrane including within the project area and trend NE-SW with enclaves of Coldbrook Group bounded by Broad River Group and intrusions of the Point Wolfe River plutonic suite. The Broad River Group and associated plutons were formed between ca. 630-620 Ma and the Coldbrook Group formed between 560-550 Ma based on U-Pb (zircon) dating (Barr and White, 1999a). The Broad River Group and associated plutons formed in a continental margin magmatic arc setting, whereas the Coldbrook Group and associated plutons formed in a post-arc rifting environment (Barr and White 1999a). Both the Broad River and Coldbrook groups are overlain by a 500-800 m thick Cambrian-Ordovician overstep sequence, consisting of conglomerate, sandstone, and shale, termed the Saint John Group. The Late Proterozoic volcanic, sedimentary, and plutonic rocks, combined with the Cambrian-Ordovician sedimentary sequence, are characteristic features of the Avalonia terrane throughout Atlantic Canada (Texidor-Carlsson, 2007).

The earliest deformation in the region is expressed by the pervasive S1 foliation with mineral and stretching lineations. F2 folds and associated S2 crenulation cleavage affect all three units: (1) Coldbrook Group, (2) Broad River Group, and (3) Point Wolfe River plutonic suite. Although they are upright folds or slightly overturned to the southeast, there is an overall asymmetry to the synformal occurrence of Coldbrook Group rocks within the high-strain zone environment (Barr and White 1999a). This implies a geometric relationship and possible reactivation of earlier fault structures. Fabric development in the older plutonic rocks implies a history of exhumation beginning under hot, anhydrous conditions during and soon after crystallization at ca. 620 Ma, followed by hydration during retrogression as plutonic rocks were tectonically emplaced into this crustal stack. The age of the later tectonic events is not yet well constrained, but could be as late as Carboniferous (Park et. al., 2008).

## 7.2 Property Geology

The Chambers Settlement Gold Project and associated gold occurrence are hosted within the 620 Ma mafic to intermediate volcanic rocks of the Hubley Hill Formation, which is part of the Broad River Group

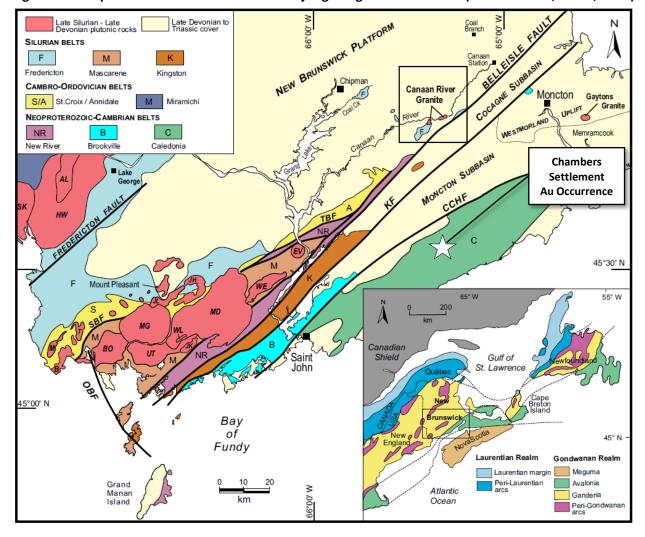


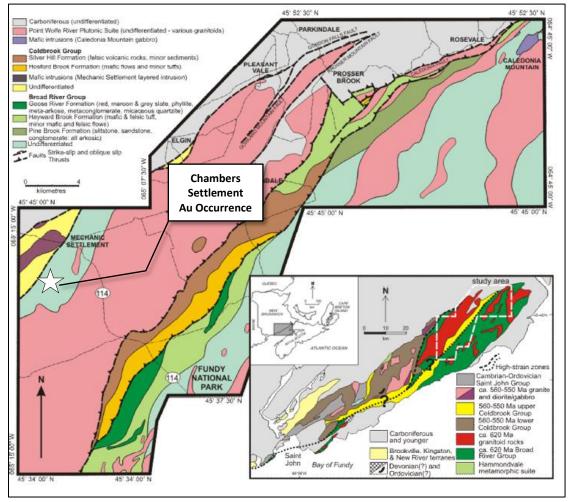
Figure 7-1: Map of southern New Brunswick major geological subdivisions (after Johnson, et. al., 2018)

(Figure 7-2 and Figure 7-3). The Hubley Hill Formation is comprised of dark grey, fine- to medium-grained, andesitic crystal tuff, minor andesitic to dacitic lithic crystal tuff and rare andesitic to basaltic flows (Barr and White, 2004). The Hubley Hill Formation is intruded by the mid-Neoproterozoic Point Wolfe River Pluton to the east and is interpreted to be in faulted contact with Coldbrook Group volcanic rocks to the west. Its exact relationship to other formations within the Broad River Group is currently undefined due to poor contact exposure. The Point Wolfe River Pluton (including the Old Shepody Road Granite) is a pink to grey medium to course grained granite grading to granodiorite. The Old Shepody Road Granite also hosts three separate mineral occurrences. The irregular shape of the contact between the Hubley Hill Formation and the Old Shepody Road Granite, together with an abundance of granitoid dykes and the presence of metamorphic biotite in the groundmass of some samples adjacent to the pluton indicate that the contact is intrusive (Barr and White 1999a).

Two separate quartz vein types are identified at the Chambers Settlement occurrence (Texidor-Carlsson, 2007). The first consists of up to 20 cm wide massive quartz veins with rare euhedral pyrite crystals up to



Figure 7-2: Caledonia Highlands Geology (after Barr and White, 1999b)



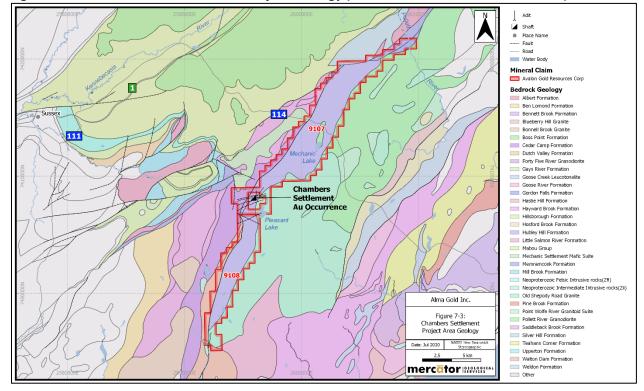


Figure 7-3: Chambers Settlement Gold Project Geology (after NB Government GIS database)

centimetre-wide and scarce green chlorite blebs typically hosted by felsic and mafic tuffs near the mineral occurrence. The second quartz vein type is irregular veins and stockworks up to 10 cm wide containing greasy quartz and abundant hematite and chlorite.

To the west, the Hubley Hill Formation is in faulted contact with the Coldbrook Group, predominantly rocks of the Cedar Camp Brook Formation. The Cedar Camp Brook Formation is characterized by light grey- to light brown-weathered, well-laminated, black to grey and green siliceous siltstone and chert. It also includes tuffaceous conglomerate, black lapilli tuff and black dacite, especially in the belt extending from Big Salmon River to Mechanic Settlement (Barr and White, 2004). Also to the west, the Walton Dam Formation (Coldbrook Group) borders the western contact along the southeast extent of the Hubley Hill Formation, and is comprised of finely laminated grey siltstones (Barr and White, 2004).

The Coldbrook Group and Broad River Group collectively make up the Precambrian Avalonia terrane and are separated from younger terranes in the west by the Clover Hill shear zone, a basement fault which was reactivated during the Carboniferous Period. Locally, outliers of Carboniferous conglomerates are observed to be unconformably overlying the Hubley Hill Formation and Broad River Group rocks faulted together, also confirming the reactivation of basement faults during the Carboniferous Period. From east to west across the Hubley Hill Formation the rocks become noticeably more deformed towards the Clover Hill shear zone.



### 7.3 Metamorphism and Structure

Regional metamorphism in the project area is interpreted to have reached lower greenschist facies based on a mica +quartz  $\pm$  pyrophyllite assemblage in felsic-intermediate rocks and a chlorite  $\pm$  epidote  $\pm$  sericite  $\pm$  chloritoid assemblage in mafic rocks. Other minerals found in the assemblage in varying amounts include sulphide minerals and rare carbonate and epidote (Texidor-Carlsson, 2007).

Geological mapping completed by Avalon Gold in 2019 (Burke, 2020a; 2020b) also indicates a parallel NE-SW trending alteration trend and associated shear zone with oblique E-W interpreted local faults in Chambers Settlement. Structural observations show an average foliation orientation consistent with regional structural trends observed by Barr and White (2004). Geological mapping results define foliated quartz-sericite schist to be dipping southeast in the schistose units within the furthest southeast mapped fault block and may represent a larger fold structure. Microfolds on the northwest side of the fault zone locally plunge 13° at 240°.

## 7.4 Mineralization and Alteration

Bedrock alteration in the project area probably resulted from circulation of a relatively acidic fluid flowing through and reacting with the host rock, with leaching of alkali elements such as Na and K due to the breakdown of K-feldspar and albite, and the formation of muscovite (Texidor-Carlsson, 2007). The continued flow of acidic fluid could have resulted in further loss of Na and K and the breakdown of muscovite into kaolinite, pyrophyllite and chlorite as seen in many rock samples. Alunite, which is an indicator mineral for many epithermal-Au deposits, occurs in more altered rocks in the project area (Texidor-Carlsson, 2007).

Base metal and precious metal mineralization in Chambers Settlement is hosted by all lithologies described above, including quartz veins. Most of the mineralization occurs in a hydrothermally altered siliceous and pyritic zone that appears to parallel the regional SW-NE trending metamorphic foliation and is exposed in several outcrops near the historical mine workings. Specifically, the sulphide mineralization is hosted by highly silicified felsic crystal and lithic tuffs. Observed alteration mineral assemblages include topaz, pyrophyllite and/or kaolinite; and pyrophyllite, kaolinite, quartz, specularite with minor chalcopyrite. Rock samples collected in the project area and near the historical Watson mine by past operators have returned elevated levels of Au, Cu, and Mo, including one grab sample collected near the historical adit by Geodex Minerals which graded approximately 1 g/t Au (Martin, 2006). The presence of pyrite is pervasive in visually altered samples, and chalcopyrite (cpy) and sphalerite (sph) are present in some samples near the mineral occurrence, particularly those that visually appear to be highly altered.



#### 8.0 DEPOSIT TYPES

The Chambers Settlement Gold Project and associated mineralization and alteration types have characteristics of a high sulphidation epithermal mineralizing system, possibly associated with a much deeper Cu-Au porphyry system such as those generally described by Hedenquist et. al. (2000) and inferred for this area by Texidor-Carlsson (2007). Such deposit types are known in equivalent Late Neoproterozoic rocks within the Avalonia terrane in southern Cape Breton Island and eastern Newfoundland (Texidor-Carlsson, 2007). The Caledonia Highlands of New Brunswick are known for particularly widespread, but minor, massive sulphide occurrences of varying mineralization types and grades. These mineral occurrences commonly contain Cu, other base metals such as Pb and Zn and localized Au mineralization, as in the case of the Chambers Settlement mineral occurrence.

Epithermal system environments are relatively shallow in depth and may host economic deposits of Au, Ag and base metals, along with anomalous levels of Hg, Sb, S and other pathfinder elements. Kaolinite, alunite, and silica are prominent alteration assemblage members. The terms low- and high-sulfidation are commonly applied to deposits that form in these environments and reflect the relative abundance of sulfide mineral assemblages present. End-member low sulfidation deposits contain pyrite-pyrrhotite-arsenopyrite and high Fe sphalerite. These contrast with pyrite-enargite-luzonite-covellite assemblages that typify high-sulfidation deposits (Figure 8-1). A subset of the low-sulfidation style has an intermediate sulfidation-state assemblage of pyrite-tetrahedrite/tennantite-chalcopyrite, plus low-Fe sphalerite. Intermediate sulfidation-state deposits are generally Ag and base metal-rich compared to the Au-rich end-member low-sulfidation deposits, with this potentially reflecting salinity variations in the mineralizing hydrothermal fluids (Hedenquist et. al., 2000).

High sulphidation epithermal gold deposits are typically oxidized, highly soluble, and contain abundant sulphides compared to low sulphidation types which are reduced, low solubility, and typically contain less sulphides. High sulphidation deposits are also known as acid-sulphate or alunite-kaolinite deposits, after their alteration assemblages. Alteration zoning may include propylitic alteration, sericite/chlorite, dickite, quartz-alunite, and vuggy quartz (Hedenquist et. al., 2000) (Figure 8-1), which are all present in Chambers Settlement. NB government geologists have also classified this prospect as being of epithermal association (Thorne et al., 2007).

Epithermal gold deposits associated with both high and low sulphidation hydrothermal systems have been described at several locations within the Avalonia Terrane in the Northern Appalachians. The most prominent of these include the Hope Brook gold deposit (high supination) in southwestern Newfoundland and other deposits in eastern Newfoundland, where low sulphidation systems of broadly similar age occur in two separate belts, one on the Avalon Peninsula and one on the adjacent Burin Peninsula (Dube et. al., 1998). The former trend is hosted primarily by 600-640 Ma subaerial pyroclastic sequences of the Harbor Main Group, and the latter by subaerial pyroclastics of the 600-560 Ma Marystown Group.

Other prominent examples of Avalonian gold deposits having economic size and grade occur in the southern portion of the Appalachian orogen in the Carolina Slate Belt. These include the Haile, Brewer, Ridgeway and Barite Hill gold deposits. Gold mineralization in these settings is hosted by late Proterozoic,



subaerial, intermediate to felsic volcanic rocks and overlying epiclastic sedimentary sequences that were affected by advanced argillic alteration and silicification.

In the report author's opinion, a high sulphidation epithermal system as described by Hedenquist *et al.* (2000) and Sillitoe (2001) is an appropriate deposit model for Alma Gold to use for current exploration planning and drill hole targeting purposes. Figure 8.1 presents a schematic model of the major elements of a high suphidation system.

Meteoric water Hydrothermal eruption Paleosurface Lacustrine siliceous & Shallow steam-heated 4 Silica alteration zone clay deposit Cinnabar, stibnite, realgar, barite Level of intensive silicification kaolinite Sb, Hg, As BOLINIG 20 Massive silicification, Hematite opal, quartz overprint 9 Illite & (Au) montmorillonite Pyrite Zone of Adulariapotassium-feldspar sericite Au-Ag 500-200 Albite-chlorite Zn, Pb, Cu Base-metal sulfides Deep propylitic Deep fluids with magmatic components Hydrothermal Stockwork Quartz vein Fluid flow breccia lithocap steam-heated acid sulphate cap silica sinter permeable horizon barren shoulder advanced argillic alteration low sulphidation epithermal Au-Ag high sulphidation epithermal Au mineralisation Argillic + advanced argillic Advanced argillic Silica ledges

Figure 8-1: Main components of a high sulphidation epithermal system (Sillitoe, 2001)



# 9.0 EXPLORATION

Alma Gold has not completed any exploration work on the Chambers Settlement Gold Project as of the effective date of this report. Historical exploration in the project area is discussed in Section 6 of this report.



## 10.0 DRILLING

Alma Gold has not completed any drilling on the Chambers Settlement Gold Project as of the effective date of this report. In addition, no drilling has been completed in the project area by previous operators.



#### 11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

## 11.1 Sample Preparation, QAQC Protocols, and Analytical Methods

Alma Gold has not yet completed any exploration and drilling work and sampling on the Chambers Settlement Gold Project.

Limited details on laboratory analytical methods used and sample collection procedures from the 2019 Avalon Gold exploration program are included in Section 6.2 of this report and referenced from mineral assessment reports filed in March 2020 (Burke, 2020a; 2020b) and ALS assay certificates reviewed by the report author. These assessment reports did not disclose any detailed Quality Assurance and Quality Control ("QAQC") and sample preparation procedures used, except that field duplicates were occasionally submitted to ALS during the soil sampling programs. There is no mention of blind certified standards and blanks being inserted into rock and soil sample shipments to ALS as part of a formal QAQC program. A more robust QAQC program is recommended for future exploration work on the project.

The laboratory analytical methods used include standard multi-element assay testing methods (i.e. multi-element ICP and FA-AA testing for samples with potential for gold) and were completed by ALS, which is independent of Avalon Gold. ALS is also accredited by the Canadian Association for Laboratory Accreditation (CALA) and registered to ISO 17025 standards.

## 11.2 Authors' Opinion on Sample Preparation, QAQC Protocols, and Analytical Methods

The report author is of the opinion that the quality of the analytical results from the Avalon Gold rock and soil sampling programs are sufficiently reliable to support recommendations for future exploration work on the Chambers Settlement Gold Project. While a more robust QAQC program could have been implemented by the previous operator (Avalon Gold), exploration work was generally completed in accordance with CIM Mineral Exploration Best Practices guidelines for early stage exploration projects.



#### 12.0 DATA VERIFICATION

#### 12.1 Overview

Data verification procedures carried out by the report author for the Chambers Settlement Gold Project consisted of two main components:

- (1) Review of public record and internal source documents cited by Avalon Gold and previous operators with respect to key geological interpretations, previously identified geochemical or geophysical anomalies, and historical and current exploration results that support the arguments for gold potential on the Chambers Settlement Gold Project; and
- (2) Completion of a site visit to the Chambers Settlement Gold Project (claim groups 9107 and 9108) on June 25, 2020, which included investigating outcrops, subcrops, and boulders near the Chambers Settlement mineral occurrence and surrounding regions on claim groups 9107 and 9108, and field reconnaissance work. Details of site visit activities carried out by the report author are presented in Section 2.3 of this report. No issues were identified that negatively impact the findings and conclusions of this report.

Minimal historical work has been completed on the Chambers Settlement Gold Project and data validation procedures were mainly focused on the recent work completed by Avalon Gold since acquiring the two claims in early 2019. Based on a detailed review of the datasets and assessment reports, it appears that the Avalon Gold exploration programs were completed using CIM Mineral Exploration Best Practice Guidelines for surface exploration and geophysics, with the exception that a more robust QAQC program could have been implemented (i.e. blind insertion of certified standards and blanks, etc).

Principal component analysis (PCA) of the Avalon Gold soil geochemistry dataset noted some minor geochemical bias related to either the phased execution of the soil survey, characteristics of the samples, cross-contamination issues, or directly related to sharp contrasts within the geochemical data itself.

Despite the possible soil geochemistry survey bias detected in the PCA work and a minimal QAQC program noted above, the report author did not identify any fatal flaws in the Avalon Gold datasets used to interpret and assess the geology, structure, and mineralization/alteration of the Chambers Settlement Gold Project. The Avalon Gold field programs and geological interpretations were supervised by experienced, professional geologists (P.Geo.) familiar with the deposit types and mineralization encountered in the project area and their conclusions should provide a strong basis for future exploration of the properties by Alma Gold.

#### 12.2 Review of Supporting Documents and Assessment Reports

As mentioned above, the report author obtained copies of relevant historical assessment work reports as part of the data validation procedures. Additional internal documents such as technical presentations summarising exploration program results were also made available. Key aspects of this historical reporting



are in part referenced in this technical report and were obtained through online searching of historic assessment reports available through the provincial government online report database.

Results of the reference documentation checking program showed that in all instances considered, digital and hard copy records presented by Avalon Gold in their assessment reporting accurately reflect content of referenced source documents. Interpretations of results differ in many cases and this is not surprising, since re-interpretation of stratigraphic and structural histories for the Avalonia and Caledonia terranes has occurred within academia since the late 1990's. This has resulted in significant changes in stratigraphic assignments for some rock packages which has in turn resulted in changes in perception of associated exploration potential.

#### 12.3 Authors' Opinion on Data Verification

The report author is of the opinion that results from the data validation program components discussed above indicate that industry standard levels of technical documentation and detail are evident in records of the exploration programs carried out by Avalon Gold on the Chambers Settlement Gold Project. Site visit field observations show that lithological and other field attributes were accurately recorded by Avalon Gold geologists, and that CIM best practice standards were consistently applied for all aspects of Avalon Gold's laboratory analytical programs related to rock and soil sampling programs and the ground magnetometer survey.



# 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

This section is not applicable.



# 14.0 MINERAL RESOURCE ESTIMATES

This section is not applicable.



# 23.0 ADJACENT PROPERTIES

The are no adjacent properties to report.



# 24.0 OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is required to make this technical report understandable and not misleading.



## 25.0 INTERPRETATION AND CONCLUSIONS

#### 25.1 Summary

Based on recent exploration work and geological interpretations by Avalon Gold, the Chambers Settlement Gold Project appears to contain thin zones of structurally controlled Au and sulphide mineralization and associated alteration, possibly of epithermal association, that follow a prominent NE-SW oriented shear/fault corridor that includes the adjacent Chambers Settlement Au occurrence. Potential for sheet-like veins and silicified zones exists within this fault corridor and warrants further focused investigation. This main structural trend is interpreted to be offset by several WSW-ENE strike-slip faults that were reactivated during the Carboniferous Period. Additional veining sequences may exist which could account for distribution and spatial correlation in elevated to anomalous Ag-Pb and Au-Mo-Cu-Bi-Te soil geochemistry trends identified in B-horizon soil geochemistry surveys and rock sampling programs completed to date on the property. However, to date only limited evidence of vein exposures or residual quartz have been discovered and sampled in Chambers Settlement. Definition of new zones of such mineralized material will be critical to progressing the project forward as a possible epithermal gold target.

The current extent of the Chambers Settlement geochemical signature as defined in recent bedrock and soil geochemistry survey results is estimated to be between 700 metres and 1,100 metres in length by 150 metres in width in the immediate area around the mineral occurrence. Shear zones associated with this trend are steeply dipping to the SE at surface and are interpreted to extend onto claim 9107 (Burke, 2020a; 2020b). The bedrock alteration zone present on the property may be wider than the soil geochemical signature and appears to extend for at least 2 km of strike length along the favourable structural corridor that includes, in part, a mineralized chlorite schist unit. Additional alteration was noted by Avalon Gold in the northeast area of the property where the Hubley Hill Formation is exposed, surrounded by Carboniferous rock units. Regional stream geochemistry gold results in that area are low, but Mo, Ag, Cu and Te results are anomalous. The latter are considered potential pathfinders (vectors) to additional Au mineralization to both the NE and SW of the mineral occurrence.

Within claim 9108, Mo, Cu, Ag and Te dominate the stream sediment geochemistry results near the SE portion of the Hubley Hill Formation, whereas Au appears to be more localized. Alteration was observed in the area surrounding the magnetic low discovered during 2019 Avalon field program, but due to limited rock exposure in this region presence of bedrock sulphide and/or Au mineralization has not been confirmed. This area requires immediate follow-up during the next field program by Alma Gold. In addition, limited exposure has deterred observation of significant veining within the project area and further mapping and structural interpretations will also be critical during the next exploration program. To date no detailed mapping has been completed in the central and southern regions of claim 9108.

## 25.2 Conclusions

Initial interpretations of the limited structural and geochemical data collected by Avalon Gold suggest that mineralization in Chambers Settlement is structurally controlled and exhibits advanced argillic alteration



typically associated with epithermal gold deposits. However, the project area could have porphyry potential to the south and an intermediate to high sulphidation epithermal potential to the northeast (Burke, 2020a, 2020b). Advanced argillic alteration located at the Chambers Settlement mineral occurrence is surrounded by phyllic (sericitic) alteration progressing to propylitic alteration towards the SE in a potential thrust fault contact. The nature of the magnetic low response in this faulted area requires further investigation, particularly due to the presence of potassic bedrock alteration in the vicinity of elevated Mo and Ag levels found in the regional stream geochemistry survey. Additionally, Se is concentrated in soils near the magnetic low anomaly, which is typical of some low to intermediate epithermal systems. These results may also indicate proximity to a potential silica cap of an epithermal system. Implications of a sodic-calcic alteration assemblage expressed at surface near the main showing may indicate a deeper setting (+300°C), but further mineralogical work is required to fully understand the effects of metasomatism in the project area. Additional ground magnetic surveys, TerraSpec hyperspectral analyses, soil sampling, and geological mapping further to the NE and SW from the mineral occurrence (central part of the project area) is required to fully understand the structure, deposit style, and mineralization potential in the entire Chambers Settlement Gold Project.



#### 26.0 RECOMMENDATIONS

A phase one exploration program is recommended for Alma Gold at Chambers Settlement based on the results from the 2019 exploration program by Avalon Gold. This next phase of exploration is focused on expanding Alma Gold's understanding of the geology, structure, alteration, and mineralization potential in the NE and SW regions of the project area within claim groups 9107 and 9108.

Past exploration has mainly been focused on, or adjacent to the Chambers Settlement Au occurrence in the central part of the project area. Due to thick overburden and glacial deposits, outcrop exposure can be limited in much of the project area. Therefore, soil and stream sediment surveys, ground and/or UAV magnetometer and VLF-EM surveys, and the use of hyperspectral mineral analyzers (i.e. TerraSpec) will continue to be important tools to discover additional mineralization within this potential epithermal gold deposit.

Table 26-1 below outlines the next phase of exploration and estimated costs associated with this program.

**Table 26-1: Recommended Program Budget** 

Phase 1	Task	<b>Estimated Cost</b>
	Rock, soil, and stream sediment sampling and prospecting	\$75,000
	focused on SW part of claim 9108 over the magnetic low	
	anomaly, and in the NE part of claim 9107	
	(includes TerraSpec and laboratory geochemistry analyses)	
	UAV magnetometer and VLF-EM surveys over areas not already	\$25,000
	covered, extending existing grid to NE and SW	
	Data interpretation, conceptual modeling, and PCA work on	\$5,000
	geochemistry data to determine additional vectors for	
	mineralization based on alteration-related elements and	
	lithological variations	
	Total	\$105,000



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#### 28.0 CERTIFICATE OF QUALIFIED PERSON

# I, Paul J. Ténière, M.Sc., P.Geo., do hereby certify that:

- I am currently employed as a Senior Geologist with:
   Mercator Geological Services Limited
   65 Queen Street, Dartmouth, NS B2Y 1GA Canada
- 2. The Technical Report to which this certificate applies is titled "NI 43-101 Technical Report on the Chambers Settlement Gold Project, New Brunswick, Canada" with an effective date of August 10, 2020.
- 3. I hold a M.Sc. in Geology from Acadia University (2002) and a B.Sc. (Honours) degree in Earth Sciences (1998) from Dalhousie University. I have worked as a geologist in Canada, USA, and internationally since my graduation over 20 years ago. My relevant experience with respect to this project includes extensive professional experience with respect to geology, mineral deposit styles, and exploration activities in the Northern Appalachians including the Avalonia terrane. I have exploration experience in the Bathurst Mining Camp in northern New Brunswick including prospecting and supervising field activities.
- 4. I am a member in good standing with the Association of Professional Geoscientists of Ontario (Registration Number: 2493) and the Association of Professional Engineers and Geoscientists of New Brunswick (Registration Number: M8502).
- 5. I have read the definition of a "Qualified Person" as set out in National Instrument 43-101 ("NI 43-101"), and certify that by reason of my education, affiliation with a professional association, and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101.
- 6. I completed a personal inspection of the Chambers Settlement Gold Project on June 25, 2020.
- 7. I am responsible for all sections of this Technical Report and I have no prior involvement with the Chambers Settlement properties that are the subject of this Technical Report.
- 8. I am independent of Red Lake Gold Inc., Alma Gold Inc. and Avalon Gold Resources Inc. as described in Section 1.5 of NI 43-101.
- 9. I have read NI 43-101 and this Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
- 10. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make this Technical Report not misleading.

Signed, sealed and dated this 10<sup>th</sup> day of August 2020.

## [Original signed and sealed "Paul Ténière"]

Paul Ténière, M.Sc., P.Geo.

Senior Geologist, Mercator Geological Services Limited