ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT:
2018 PROSPECTING, GEOCHEMICAL, GEOLOGICAL, PHYSICAL WORK

TOTAL COST: $ 12,644.55

AUTHOR(S): **David J. Piggin, RPF, Prospector**

SIGNATURE(S): **David J. Piggin, RPF**

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):

STATEMENT OF WORK EVENT NUMBER(S)/DATE(S):
EVENT 5722846 dated December 13, 2018: December 15, 2017 to December 10, 2018.

YEAR OF WORK: **2018**

PROPERTY NAME: **BARRIERE RIDGE**
CLAIM NAME(S) (on which work was done):

2 claims – 485.1597 hectares: 744542, 744562,
Save and except DL4023 WHITE ROCK MC (18.09 ha) a Crown Granted mineral claim.

COMMODITIES SOUGHT: **Gold, Silver, Copper, Lead, Zinc**

MINERAL INVENTORY MINFILE NUMBER(S),IF KNOWN:
MINFILE 082M 066 WHITE ROCK (with DL4043 KDYD WHITE ROCK MC);
MINFILE 082M 069 SILVER MINNOW (aka SILVER MINERAL)
MINFILE 082M 222 CAD

MINING DIVISION: **KAMLOOPS**

LATITUDE: **51 deg 18' 7.01" N;**
LONGITUDE: **-119 deg 53' 56.75" W** (at centre of work)
UTM Zone: **11** EASTING: **297913.4** NORTHING: **5687395.2**

MAP SHEETS: **082M021; 082M031**

OPERATOR(S) [who paid for the work]: Property under option agreement.

Mantra Resources Inc, 1055 East 41st Avenue, Vancouver, B.C. V5W 1P9

OWNER [property optioned from]:

David J. Piggin, RPF, Prospector: 5-2363 DeMamiel Drive, Sooke, British Columbia, V9Z 1K3, Cell: (250) 319-3191

REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude. Do not use abbreviations or codes)

Baldy Batholith; Granite Intrusion; Mid-Cretaceous Intrusion; Iron Carbonate Alteration; Eagle Bay Assemblege, Devono-Mississippian; Metasediments; Volcanogenic Massive Sulfides; Devonian Orthogneiss; paragneiss; sericite alteration; Intrusive gold; copper in paragneiss; Limestone; Tshinakin Limestone; chlorite schist, Silver in Limestone; Silver in quartz veins; Silver Lead in limestone; Silver Lead in quartz limestone

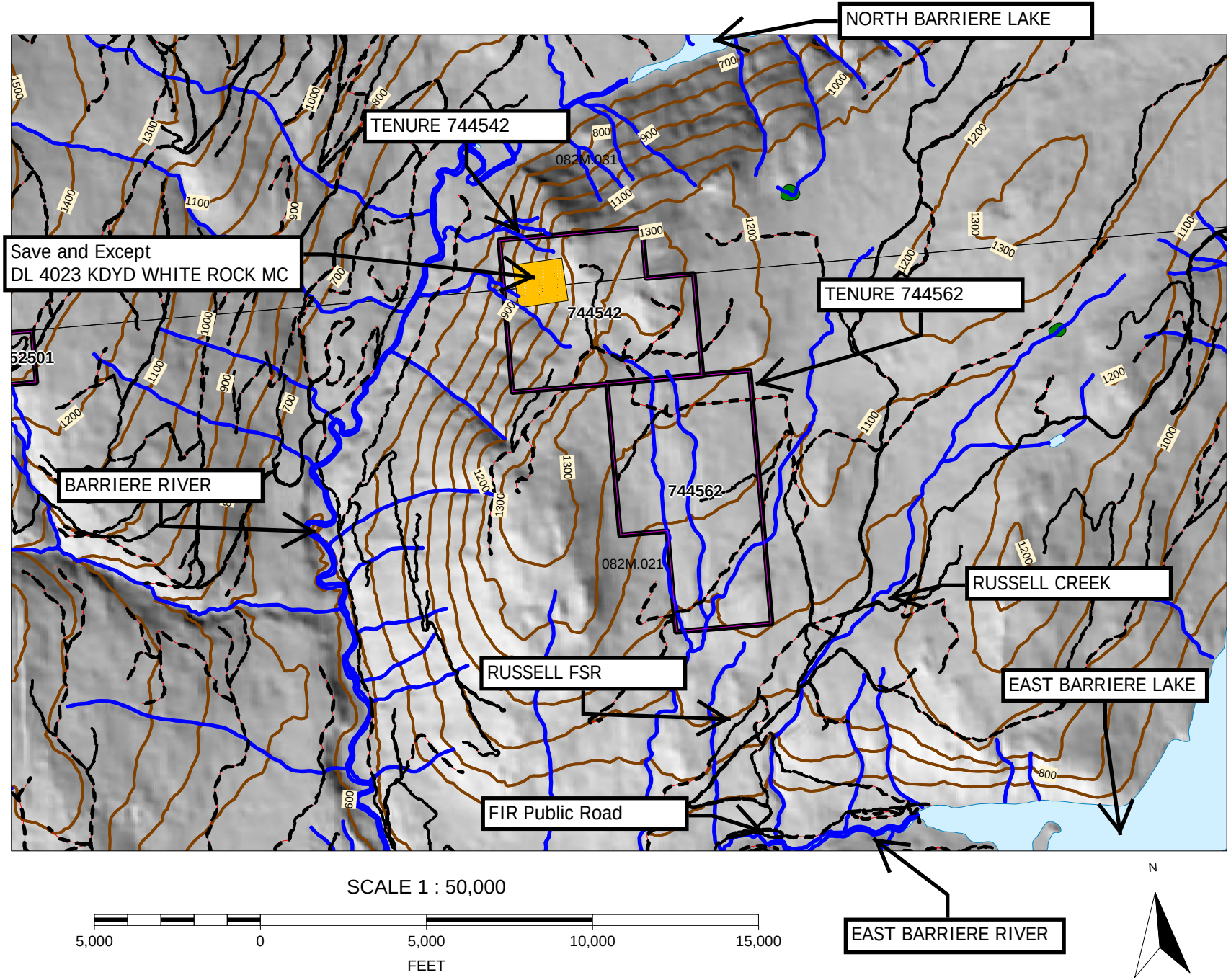
REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:

03350, 05363, 08210, 12847A, 12847B, 13168, 13207, 13297, 13793, 14123, 14397, 18489, 19047, 19173, 19851, 22956, 32383, 33190, 33744, 34651, 35500, and 36263, 37066.

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (in metric units)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping		744542	$ 300.00
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for …)			
Soil	**20 collected; not assayed yet**	744562	$3,000.00
Silt			
Rock	**10 collected; 6 assayed**	744542	$ 419.55
Other (STREAM)			
DRILLING (total metres, number of holes, size, storage location)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling / Assaying	**30 samples collected**	744542, 744562	$ 4,200.00
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale/area)	**485.1597 hectares**	744542, 744562	$ 2,000.00
PREPARATORY / PHYSICAL			
Line/grid (km)	**Soil Line 0.475 km GPS'd**	744562	$ 2,000.00
Topo/Photogrammetric (scale, area)			
Legal Surveys (scale, area)			
Road, local access (km)/trail	**Access Trail Brushing, 0.5 kilometres**	744542	$ 200.00
Trench (number/metres)	2 hand trench: 0.6 m x 0.4 m x 0.3 m and 0.90 m x 0.60 m x 0.25 m	744542	$ 100.00
Underground development (metres)			
Other	**Literature General Research, database compilation, etc**	744542, 744562	$ 425.00
		TOTAL COST	$ 12,644.55

BARRIERE RIDGE

BARRIERE RIDGE CLAIMS



MapPlace.ca

Mineral Titles Online Report

Click on Tenure Numbers for more information.

Click column headings to sort results.

Download to Excel

Tenure Number	Type	Claim Name	Good Until	Area (ha)
744542	Mineral	BLUFF1	20200423	222.3252
744562	Mineral	BLUFF2	20200423	262.8345

Total Area: 485.1597 ha

BCGW Metadata

Mineral Title Online
BC Geological Survey
British Columbia Ministry of Energy and Mines
Last updated in April 2007

2018 PROSPECTING, GEOCHEMICAL, GEOLOGICAL, AND PHYSICAL WORK

ASSESSMENT REPORT FOR BARRIERE RIDGE CLAIMS

Mantra Resources Inc

10th Floor, 595 Howe Street, Vancouver, British Columbia, V6C 2T5

KAMLOOPS MINING DIVISION, BRITISH COLUMBIA, CANADA.

TENURE 744542 – 222.3252 hectares

(Save and except DL4023 KDYD WHITE ROCK MC)

Tenure 744562 – 262.8345 hectares

TOTAL – 485.1597 hectares:

Map Sheets: 082M021; 082M031

66 kilometres northeast of Kamloops, British Columbia, Canada.

Lat 51 deg 18' 7.01" N, and Long 119 deg-53' 56.75" W; or

Lat 51.3019 deg, Long -119.8991 deg; or

NAD 83 Zone 11. 0297913.4E .5687395.2N

West of East Barriere Lake; South of North Barriere Lake, East of Barriere River at Russell Creek.

Event No.	Date	Tenure Numbers	Gross Area (hectares)	Total Value of Work($)	PAC Account ($)	Total Applied Work Value($)
5722846	December 13, 2018	TENURE 744542 *Save and except DL4023 KDYD WHITE ROCK MC); TENURE 744562	485.1597	$ 12,644.55	$ 11.22	$ 12,633.33
		ASSESSMENT REPORT SUMMARY	**485.1597 hectares**	**$ 12,644.55**	**$ 11.22**	**$ 12,633.33**

***NOTE:** An 18.09 hectare Crown Granted mineral claim DL4023 KDYD WHITE ROCK MC (within Tenure 744542) is save and excepted from the BARRIERE RIDGE claims; and is held by George Robert Mitchell. MINFILE 082M066 WHITE ROCK is located within DL4023 KDYD WHITE ROCK MC.

PREPARED BY:

David J. Piggin, R.P.F.PROSPECTOR, Free Miner 140689,

5-2363 DeMamiel Drive, Sooke, British Columbia, V9Z 1K3

SUMMARY

Exploration work was completed by Mantra Resource Inc from December 15, 2017 to December 10, 2018 on the BARRIERE RIDGE claims – Tenures 744542 and 744562. DL4023 KDYD WHITE ROCK MC is saved and excepted from the claims. The Total Value of Work for Event 5722846 was $ 12,644.55. The claims are located between North Barriere and East Barriere Lake; 66 km NE of the Kamloops, British Columbia. Mineralization was hosted in the Devono-Mississippian Eagle Bay Assemblege (EBGt – early Cambrian Tshinakin Limestone) within quartz veins, veinlets, stockwork and breccia rocks. In the 1980's, parts of the claims were optioned by Noranda Inc, Minnova Inc, Cyprus Anvil Mining Corporation, Falconbridge Limited, and others. From 1984 - 1988, 16 diamond drill holes were completed for 1,836.6 m. Best result were CAD 84-1: Ag 2 g/t; Zn 0.65 %; and CAD 84-2 Ag 15.6 g/t; Zn 12,000 ppm; Pb 392 ppm over 0.1 m). In March 2, 2011 Astral Mining Corporation optioned the claims from David J. Piggin. In February 2013, Astral was taken over by Orex Minerals Inc; they dropped the option on February 28, 2013.

Previously Reported Selected Anomalous Results: ARIS 32383, 33190, 33744, 34651, 35500, 36263, 37066.
SILVERGAL Showing: Ag 220 g/t, Pb 12.4 %; and Ag 172g/t, Cu 7470 ppm, Pb 795 ppm, Zn 3078 ppm.
BR17-AP04: Au 0.430 ppm; Ag 357 ppm; Bi 462 ppm; Pb 20 %; S 3.04 %; Sb 92.3 ppm; Zn 121 ppm
MINFILE 082M 069 SILVER MINNOW: In 1925: Ag 927 g/t Au 0.69 g/t;
10E41181 SMQCH7 Ag 171 ppm; Pb 14.4 %; S 2.27 %; Sb 198.5 ppm; Te 30.4 ppm; Zn 6490 ppm (1m).
BR17-AP03: Au 0.116 ppm; Ag 428 ppm; Pb >20 %; S 6.33 %; Sb 430 ppm; Zn 1.605 %
10E41477_BR17SM1: Au 0.11 ppm; Ag 308 ppm; Pb 20 %; S 3.04 %; Sb 277 ppm; Zn 1.23 %
SILVERBOY Showing: 10E41072 SM13R2 Ag 246 ppm; Bi 56.6 ppm; Pb 13.55 %; Sb 237 ppm; Sn 2 ppm; Zn 5.34 %
BRECCIA AREA:
10E41016 SM11R999: Au 29.2 ppb, Ag 50.4 ppm, Cu 1475 ppm, Pb 1275 ppm, Sb 533 ppm, Zn 2990 ppm.
SILVER TRAIL Showing: 10E41081_BR14R73: Ag 117 ppm; Ca 19.2 %; Cu 1970 ppm; Mg 10.65 %; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %. 10E41085_BR14R77: Ag 19.7 ppm; Ca 18.65 %; Mg 9.81 %; Pb 5060 ppm.
BR17-AP01: Ag 73.7 ppm; Ca 20.9 %; Cu 903 ppm; Mg 11.6 %; Pb 1.795 %; Sb 107.5 ppm; Zn 5950 ppm
Airborne Geophysics: Completed by Fugro and reported in ARIS 33190 and 33744. **Photosat Image:** ARIS 34651.

2018 EXPLORATION: - A total of 30 samples (10 rock and 20 soil) were collected and 6 rocks assayed.
ROAD SOIL LINE18 - Soils: 475 metres of line was completed, and 20 soil samples collected.
2018 SELECTED ANOMALOUS RESULTS: SILVERBOY AND BRECCIA AREA
140E41507_BR18R10A: Ag 28.8 ppm; Bi 5.71 ppm; Ca 5.63 %; Mg 1.54 %; Pb 4020 ppm
10E41505_BR18R99A: Ag 13.35 ppm; Ca 24.4 %; Mg 9.43 %; Pb 686 ppm; Sb 125 ppm; Zn 573 ppm
140E41508_BR18R9:
Ag 11.45 ppm; Bi 4.94 ppm; Ca 22.5 %; Cd 125.5 ppm; Mg 10.2 %; Pb 6280 ppm; Sb 42.8 ppm; Zn 2.03 %
140E41510_BR18R9B: Ag 3.76 ppm; Bi 3.62 ppm; Ca 18.3 %; Mg 8.06 %; Pb 1700 ppm; Zn 904 ppm
140E41509_BR18R9A: Ca 20.1 %; Mg 8.85 %; Mo 2.34 ppm; Pb 170.5 ppm; Zn 661 ppm
Physical Work: 500 metres of trail was brushed; and 2 hand trenches (0.6 m x 0.4 m x 0.3 m; 0.90 m x 0.60 m x 0.25 m) were completed during sampling.
2017 Soil Slough Below Exploration Trail: Reported in ARIS 37066 was re-photographed near the SILVER TRAIL showing.
Deposit Models and Literature: Conducted literature and general research for publications related to the Eagle Bay Assemblege, and Polymetallic and Carbonate Replacement Deposit Models.
FIRST NATIONS Letter July 2018: Information sharing was completed with affected First Nations including emails, face-to-face meetings; and written responses were received.

Recommended Exploration: Based on the high grade Ag Pb Zn SILVER MINNOW/SILVERGAL/SILVERBOY/SILVER TRAIL and BRECCIA Area showings; the Au Ag Cu Pb Sb Zn anomalies in soils; and the results of previous ARIS reports further exploration work is warranted. The high priority targets are Ag Pb Zn (Cu Au) anomalies at the SILVER MINNOW, SILVERBOY, SILVER TRAIL, SILVERGAL, and BRECCIA Area. Exploration should include prospecting; rock and geochemical sampling, geological mapping; ground geophysics; ground truthing geophysical anomalies; trenching and drilling as well as First Nations consultation. A five year program of $1,000,000 is recommended, starting the summer of 2019.

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I. MAP OF PHYSICAL WORK – BRUSHING AND DANGER TREE REMOVAL; and HAND TRENCHES: –(1:5,000)

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K. ALS MINERALS CANADA: ASSAY CERTIFICATE FOR 2018. Certificate VA18271408.

I - INTRODUCTION:

The purpose of this report is to provide a summary of the exploration work completed by Mantra Resources Inc. from December 15, 2017 to December 10, 2018 on the BARRIERE RIDGE claims – Tenures 744542 and 744562. Total Value of Work for Event 5722846 was $ 12,644.55. The 2 claims total 485.1597 hectares. An MTOnline map of the exploration area is given in the APPENDIX. In August 2017, the BARRIERE RIDGE claims were optioned to Mantra Resources Inc by the author David J. Piggin, RPF, Prospector.

*Note: An 18.09 hectare Crown Granted mineral claim DL4023 KDYD WHITE ROCK MC (situated within Tenure 744542) is save and except from BARRIERE RIDGE claims; and is believed to be held by George Robert Mitchell (Free Miner 141118). This crown granted mineral claim was granted on January 1, 1921. MINFILE 082M066 WHITE ROCK is located within DL4023 KDYD WHITE ROCK MC.

The BARRIERE RIDGE claims are located 66 km NE of Kamloops, B.C. The claims are situated along the west shore of East Barriere Lake; along the south shore of North Barriere Lake; east of the Barriere River at Russell Creek. The onsite arterial access is via the Barriere Lakes Public Road (PR), Fir PR, Russell Forest Service Road (FSR), Barriere Ridge North FSR, and Barriere Ridge South FSR.

Assessment Report Information System (ARIS): The most recent ARIS reports are 32383, 33190, 33744, 34651, 35500, 36263, and 37066.

In the 1980's, various parts of BARRIERE RIDGE and/or adjacent areas were optioned by Noranda Inc, Minnova Inc, Cyprus Anvil Mining Corporation, Falconbridge Limited, and others. Between 1984 and 1988, some very shallow diamond drill holes were completed. This drilling was summarized in a data table presented in Assessment Report (ARIS) 33744. In March 2, 2011 Astral Mining Corporation optioned the BARRIERE RIDGE claims. In February 2013, Astral was taken over by Orex Minerals Inc (Orex) of Vancouver, B. C. On February 28, 2013, due to the industry wide reduction in funding for junior mining companies, Orex dropped their option on the BARRIERE RIDGE claims. All subsequent exploration has been done by David J. Piggin until August 2017 when Mantra Resources Inc. optioned the property.

The primary objectives of the 2018 exploration program were as follows:

(a) Contact, listen, consult, liaise, and communicate with First Nations representatives; and logging companies.
(b) Prospect the MINFILE 082 069 SILVER MINNOW area to find new showings.
(c) Prospect the area just east of DL 4023 KDYD WHITE ROCK MC in the SILVERBOY/BRECCIA Area.
(d) Review all the ARIS reports, Airborne Geophysical Reports, maps and data to have a working knowledge of the major and minor anomalies.
(e) Conduct research, and literature review of various deposit models for the known mineralization.
(f) Collect soil samples from new roadside construction.
(g) Cut and remove windfalls/brush from the exploration/evacuation access road to DL 4023 KDYD WHITE ROCK MC.
(h) Prospect, collect, and report new data using grassroots and hand exploration techniques.
(i) Propose new explorations works for the 2019 and beyond.

A. LOCATION, ACCESS, INFRASTRUCTURE, FACILITIES:

The City of Kamloops is located at the junction of the Trans Canada Highway (Hwy), Yellowhead Hwy (No. 5), Coquihalla Hwy, and Highway 97 which is the confluence of the South Thompson and North Thompson Rivers. The Village of Barriere is located 80 km north of Kamloops on the Yellowhead Hwy and is the nearest community to BARRIERE RIDGE claims. (See the ILLUSTRATION below and maps in APPENDIX).

ILLUSTRATION # 1: BARRIERE RIDGE Claims: Main Access Roads (not to scale).

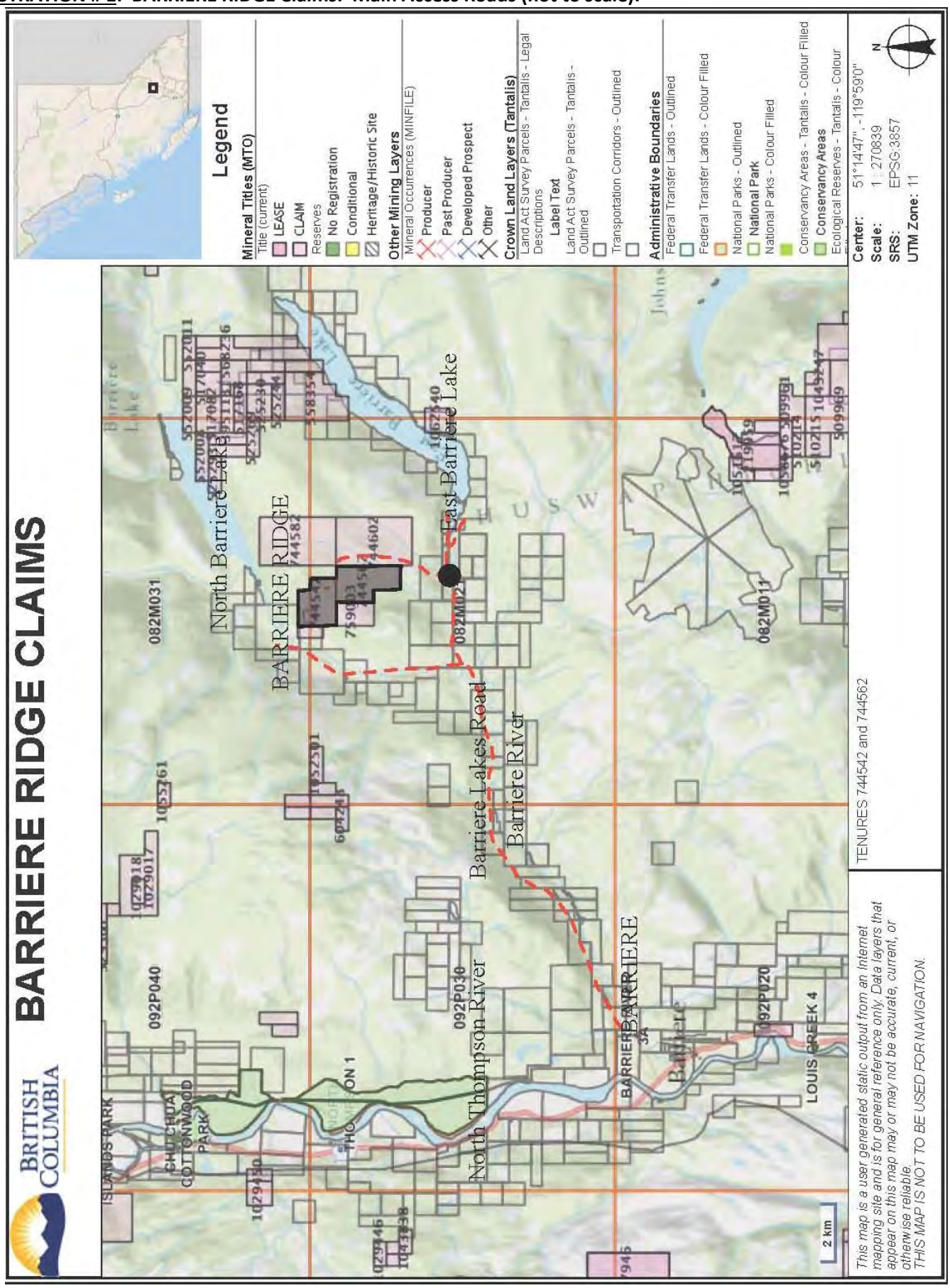
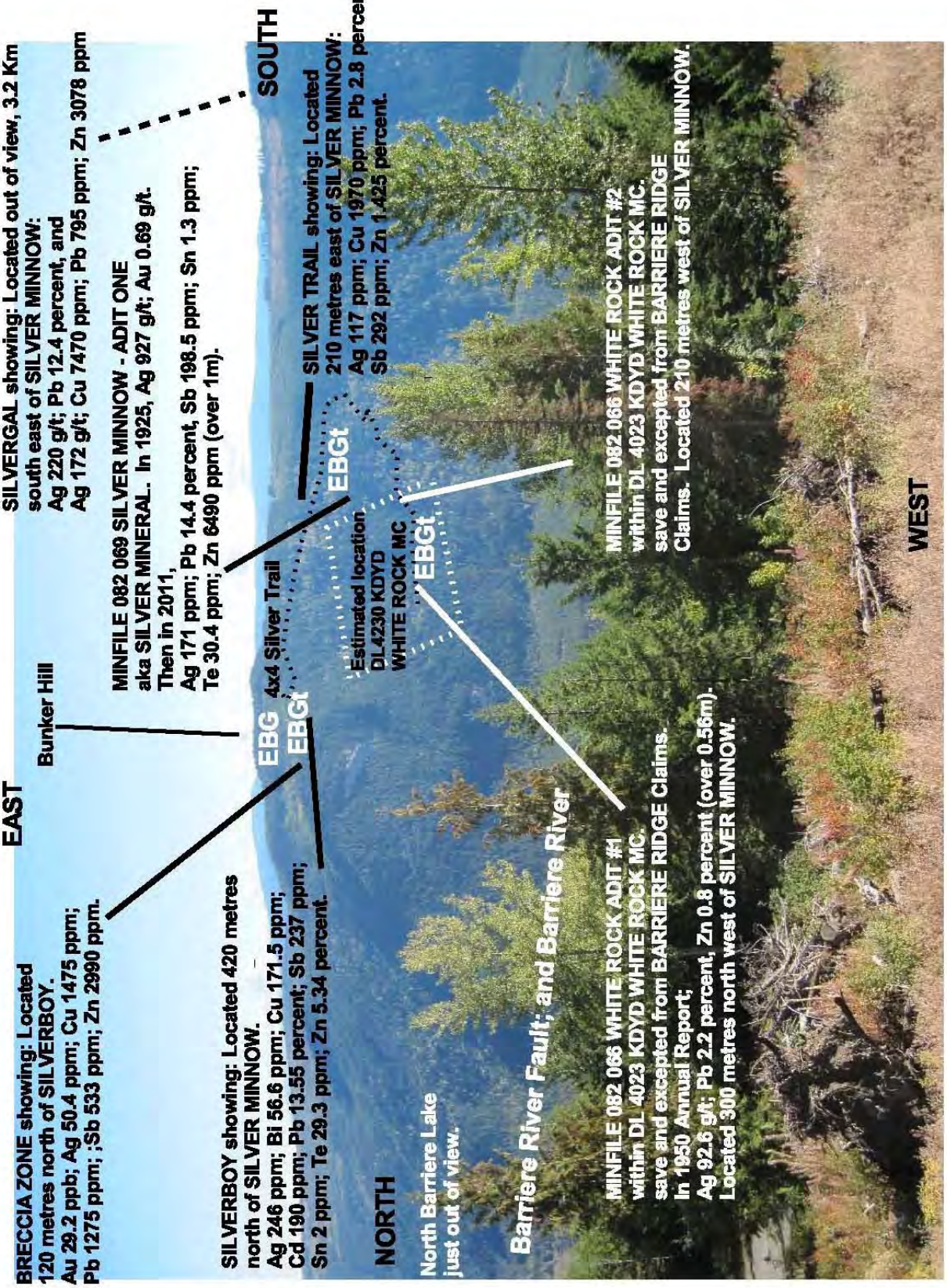


ILLUSTRATION # 2: Overview of BARRIERE RIDGE claims. Showing MINFILE Occurrances. Taken in an easterly direction



There is one main access road is the Barriere Lakes Public Road (PR) and it is paved. The onsite access is via the Fir PR, Russell FSR, Barriere Ridge North FSR, and Barriere Ridge South FSR; as well as a number of related spur roads such as Branch 8 and Branch 31 of the Russell FSR. Leaving Barriere travel east on the Barriere Lakes PR (paved) for 20 km (Zone 11 and 295678 E; 5681505 N); then continue straight onto the East Barriere Lake PR (gravel) for 3.5 km; and then turn left onto to Fir Road (Zone 11. 299226 E and 5681913 N). Within 100 metres you will encounter the Russell FSR 8534 at 0 km. The road radio frequency is RR22.

B. PROPERTY STATUS:

The BARRIERE RIDGE claims are in good standing and are currently held by Mantra Resources Inc. (100 %), and the claims were optioned from David J. Piggin.

C. PHYSIOGRAPHY AND CLIMATE:

The property is located within the Shuswap Highlands Physiographic Area; and the Northern Wet-Belt Climatic Region and the North Wet-Belt Transition Climatic Region (Lloyd et al 1990). More specifically, they are within the Interior Cedar Hemlock (ICHmw3) Biogeoclimatic Zone (BGCZ).

In general terms, the Interior Cedar Hemlock (ICH) climate is continental dominated by easterly moving air masses, resulting in cool, wet winters and warm, moderately dry summers. Snow fall is moderate to high. Frost occurrences during the summer are uncommon. For zonal soils:

a. The dominant soil type is a Humo-Ferric Podzol.
b. In moist subzones, Dystric Burunisols and Brunisolic Gray Luvisols
c. In wetter subzones, Ferro-Humic Podzols.
d. Litter depth 2 to 15 cm.

For the ICHmw3: The mean annual precipitation is 671 mm and the mean snowfall is 252 cm (211 cm to 287cm). The mean frost free period is 127 days.

The large body of water in East Barriere Lake and North Barriere Lake may moderate the effects of the general climate conditions; and yet the proximity of the Dunn Peak snow pack to BARRIERE RIDGE may also influence climatic conditions at Russell Creek especially in the spring and fall.

The property is tree covered and is extensively logged with numerous haul roads, spur roads, and skidder trails or dozer trails throughout. Harvesting is active at various locations on the BARRIERE RIDGE Claims. Some of the oldest logging roads are brushing in and/or have immature trees growing on them.

The site characteristics are quite variable. The BARRIERE RIDGE claims are located along the mid to upper slopes of the Barriere River and East Barriere River; as well as the lower to mid elevations of Russell Creek. In general terms, the aspect is south; and the Tenure 74452 faces northwest and west. The average elevation is about 1200 metres.

The claims are bounded on the east side by Russell Creek; and on the west and north side by the mid to upper slopes of the Barriere River at the outflow of North Barriere Lake; and on the south side along the mid slopes of the East Barriere River near the outflow of East Barriere Lake

Slopes are gentle to moderately steep; and are very steep in the vicinity of north half of Tenure 744542. There are numerous near vertical rock faces and talus slopes at Tenure 744542. These rock faces host mineralization, and are useful for prospecting and identifying rock units; and have been underexplored.

TABLE 1: BARRIERE RIDGE **Physiography and Biogeoclimatic Zones by Tenure Number**. A summary of the aspect and elevation based on ARIS maps, and Biogeoclimatic Zone classification in based on Lloyd et al 1990.

Tenure Number	Aspect	Mean Slope (%)	Elevation Range (metres)	Mean Elevation (metres)	Biogeoclimatic Subzone
744542	NW, W, S	45 (flat to 80+ %)	625-1375	1200	ICHmw3.
744562	S to SE	20(flat to 35%)	700-1275	1050	ICHmw3.

D. LOCAL INFRASTRUCTURE:

The following is a brief summary of the local infrastructure:

1. Deep Sea Port: The nearest deep sea port is at Vancouver, B.C. about 350 km southwest of Kamloops.
2. Railroad: The Canadian National Railway (CNR) mainline goes through the community of Barriere (on the Yellowhead Hwy) about 20 km west of BARRIERE RIDGE. The CNR mainline goes through Kamloops.
   The Canadian Pacific Railway (CPR) mainline passes through Kamloops located 64 km south of Barriere.
3. Utility Distibution Lines:
   - A power distribution line runs from Barriere 20 km along the Barriere Lakes PR and within 5 km of the claim boundary.
   - Telephone/Cellphone: There is telephone service to homes along the East Barriere PR. There is cell phone service in Kamloops, and Barriere but there is no cellphone service from the claim areas. There are a few unique/select west facing vantage points on the claims where you can get out on cellphone.
4. Commercial Resort: The private East Barriere Resort (north central on East Barriere Lake) is accessed by the Russell FSR (turn off about 2 km); and there is a public North Barriere Lake resort (RV/cabins) on the north shore of North Barriere Lake.
5. Forest Service Recreation Sites: There is a recreation site on the west end of East Barriere Lake, and also on the north shore of North Barriere Lake at Vermillion Creek.
6. Community Recreation: There is a community recreation site on the Barriere Lakes PR.
7. Roads and Logging Companies: The Thompson Rivers Forest District administers forest tenures in the claims area (250-371-6500). The BC Timber Sales Program, Kamloops Timber Sales Office (250-371-6500) is the major licencee harvesting timber from the Russell Creek area.
   The primary roads are the East Barriere and North Barriere FSR roads. These roads are maintained to a high standard, where practicable are almost 2 lanes wide, and are usually ploughed in the winter. The Russell FSR is one lane wide, and it is not ploughed unless there is active logging on the road system. The Russell FSR is maintained by the BC Timber Sales Program.
8. Sawmill: Tolko Industries Ltd has veneer (plywood) operation at Heffley Creek (north of Kamloops) on the Yellowhead Highway. Gilbert Smith Forest Products has a cedar sawmill in Barriere.
9. Logging Road Frequencies:
   East Barriere Lake FSR and North Barriere Lake FSR – frequency RR22.
10. Emergency Facilities:
    There is a full service hospital with emergency facilities (heliport) in Kamloops including police, and search and rescue. There is an ambulance, clinic, and police station in Barriere. Active logging operations will have industrial first aid attendants on site.
11. Education: There are schools in Kamloops, Barriere and Clearwater. Thompson Rivers University in Kamloops has various degree programs; and has a geology faculty.
12. Residential Garbage Disposal: At Barriere, and there is a Thompson Nicola Regional District (TNRD) Eco Depot.

E. HISTORY:

The following section is divided into 8 parts as follows:.

1. Past Producers and Producers
2. Advanced Development Projects
3 MINFILE Occurrences and Recent Showings, Assessment Reports, Historic Drilling, Prospector Assistance Program.
4. Airborne Geophysics, Fugro Reports, Including An Interpretations Report.
5. Proposed Ground Geophysics.
6. Soil Geochemical Surveys
7. Stream Geochemical Surveys
8. Photosat Image (0.5m pixel).

1. Past Producers and Producers:

Three historic past producer mines are located in the immediate vicinity of the BARRIERE RIDGE claims and they are as follows:

- Samatosum Mountain (MINFILE 082M-244) located 12 km to the south (Table 2).
- Homestake Mine (MINFILE 082M-025) located 16 km to the south (Table 3).
- Windpass Mine (MINFILE 092P039) located 16 km to the northwest (Table 4).

Table 2: Samatosum Mountain (MINFILE 082M-244) recovery table.

1989 to 1992	**Metric**	**Imperial**
Silver	429,356,776 grams	13,804,121 ounces
Gold	639,118 grams	20,548 ounces
Copper	3,678,016 kilograms	8,108,635 pounds
Lead	5,069,127 kilograms	11,175,509 pounds
Antimony	97,620 kilograms	215,215 pounds
Zinc	9,538,263 kilograms	21,028,264 pounds

Table 3: Homestake Mine (MINFILE 082M-025) recovery table.

1926 to 1941 (intermittent)	**Metric**	**Imperial**
Silver	7,750,829 grams	281,345 ounces
Gold	11,259 grams	362 ounces
Copper	9,138 kilograms	20,146 pounds
Lead	141,295 kilograms	311,502 pounds
Zinc	203,310 kilograms	448,222 pounds

Table 4: Windpass Mine (MINFILE 092P-039) recovery table.

1916 to 1944 (intermittent)	**Metric**	**Imperial**
Silver	93,435 grams	1,886 ounces
Gold	1,071,684 grams	37,798 ounces
Copper	78,906 kilograms	173,956 pounds
Mined	93,435 tonnes	102,965 tons
Milled	73,319 tonnes	80,798 tons

From a regional perspective (within 150 km radius):

- **The former, AFTON MINE** (Teck Corp) near Kamloops, a former open pit producer, is 80 km to the southwest. This mine was in production for 14 years from 1977 to 1991.

- **New Gold Inc.'s – New Afton Project** (www.newgold.com) 10 km south of Kamloops and started production in July 2012. The mine is being developed as an underground block cave at 11,000 tonnes per day. The proposed average annual production will be 120,000 tonnes of concentrate containing 85,000 ounces of Au, and 75 million pounds of Cu. Proven and probable reserves are Au = 1.05 million ounces, Cu = 993 million pounds, Ag 3.1 million ounces. 2015 Production: Au 35,500 oz. Cu 25.1 million lbs. Ag 76,000 oz. Deposit Type: LO3: Alkalic Porphyry Cu Au MINFILE 092INE023 – NEW AFTON (aka AFTON, AFTON MINE, etc)
  http://www.newgold.com/operations/new-afton/default.aspx
  Also, the site of the past producing open pit TECK CORP – AFTON MINE.

- **The HIGHLAND VALLEY COPPER (Teck Resources Ltd - 97.5%)** near Logan Lake, is located 120 km southwest of BARRIERE RIDGE. This mine is the largest mine in Canada and produces Cu and Mo.
  2015 Production: 152,000 tonnes of copper.
  http://www.teck.com/operations/canada/operations/highland-valley-copper/
  The mine is expected to close in 2025.

2. Advanced Development Projects: (within 150 km)

From a regional perspective, within 150 km of the BARRIERE RIDGE there are a number of active advanced development projects as follows:

The **Harper Deposit** (MINFILE 082M 009) 20 km to the north, is currently being developed by Yellowhead Mining Inc. of Vancouver (www.yellowheadmining.com) and they have identified a 43-101 compliant resource of over 569 million tonnes grading Cu 0.32% and an inferred resource of 62.7 million tonnes grading Cu 0.33%. Preliminary economic assessments, environmental assessment processes, geotechnical and hydrogeological studies, and First Nations studies are currently underway.

Proposed AJAX MINE, which is a joint venture between Abacus Mining and Exploration Corp (www.amemining.com), and KGHM AJAX Mining Inc (http://ajaxmine.ca/). It is situated beneath the former AJAX Pits at the former AFTON MINE (Teck Corp) just south of Kamloops. For details see the following MINFILES **MINFILE 092INE012 AJAX WEST and MINFILE 092INE013 AJAX EAST.**

A recent Ni-43-101 compliant Preliminary Economic Assessment Report (June 22, 2009) indicated the Ajax copper-gold project proposes a 60,000 tonne per day operation producing an average of 110 million pounds of Cu and 100,000 ounces of Au in concentrate per year. Preliminary economic assessments, environmental assessment processes, geotechnical and hydrogeological studies, First Nations studies, and drilling have been done. The environmental assessment has not been approved and a mine permit has not been issued.

3. MINFILE Occurrences and Recent Showings, Assessment Reports, Historic Drilling, Prospector Assistance Program.

The history of the BARRIERE RIDGE claims is given here in the following sections: MINFILE Occurrences and Recent Showings, ARIS Reports, Historic Drilling , and Prospector Assistance Program (Grants). The early history of exploration in the area is not well known although a number of references were found in the Ministry of Mines Annual Report from 1924, 1925, 1926, 1927 and 1928 (Bruce Madu, pers. comm. 2011); and in the Ministry of Energy and Mines MINFILE (www.empr.gov.bc.ca/mining/geoscience/minfile/Pages/default.aspx) information system. See also ARIS 32383, 33190, 33744, and 34651.

(a) MINFILE Occurrences and Recent Showings:

Within or near the boundary of the BARRIERE RIDGE claims there are 3 MINFILE occurrences and three main showing as follows:

(i) MINFILE 082M 066 WHITE ROCK (with DL4043 KDYD WHITE ROCK MC);
(ii) MINFILE 082M 069 SILVER MINNOW (aka SILVER MINERAL);
(iii) SILVERGAL SHOWING;
(iv) SILVERBOY SHOWING;
(v) SILVER TRAIL SHOWING;
(vi) MINFILE 082M 222 CAD – outside the BARRIERE RIDGE boundary.
(vii) Miscellaneous MINFILE Occurrences (outside BARRIERE RIDGE). There are numerous (12+) MINFILE showings in the immediate vicinity of the BARRIERE RIDGE claims.

DL4023 KDYD WHITE ROCK MC, which contains MINFILE 082M 066 WHITE ROCK, is save and excepted from the BARRIERE RIDGE Claims because it is a crown granted mineral claim and it is owned by a third party George Robert Mitchell. The Crown Grant was made on January 1, 1921.

DL4023 KDYD WHITE ROCK MC is adjacent to SILVER MINNOW, and is geologically relevant to the BARRIERE RIDGE claim group. Therefore it is included here even though it is not within the claim group. The following is a brief description of each of the above 3 MINFILE occurrences as well as some important historic descriptions. Refer to the MINFILE website for more specific references and information; also Assessment Report 32383, 33190, 33744, 34651, 35500, 36263, and 37066.

(i) MINFILE 082M 066 WHITE ROCK (with DL4043 KDYD WHITE ROCK MC)

The WHITE ROCK showing is described as epigenetic hydrothermal polymetallic veins Ag-Pb-Zn+/-Au; and with a vein/stockwork character. The significant minerals are galena tetrahedrite, sphalerite, and chalcopyrite; and it is associated with quartz, calcite, azurite and malachite. The MINFILE indicates a *"56 centimetre sample assayed 2.2 % lead, 0.8 % zinc, 92.6 grams per tonne silver and 0.34 grams per tonne gold (Annual Report 1950").* The following Illustrations and results were taken from ARIS 33190.

ILLUSTRATION #3: Entrance (apron area) leading into the **WHITE ROCK #1 ADIT** referred to as **MINFILE 082M 066 WHITE ROCK (with DL4043 KDYD WHITE ROCK MC).** David Piggin in picture is 180 cm tall and photo is shot in an easterly direction from the entrance apron. A mine car rail is shown in the foreground. DL 4043 KDYD is save and excepted from the BARRIERE RIDGE claims (MVI_0330.jpg):

ILLUSTRATION #4: Partially buried entrance to **WHITE ROCK #2 ADIT** within DL4043 KDYD WHITE ROCK MC but on the boundary with BARRIERE RIDGE. Judy Burr is pointing to galena/silver mineralization (162 cm tall). Photo is shot from the road in an easterly direction (IMG_3941.jpg):

ILLUSTRATION #5 : **WHITE ROCK #2 ADIT** within DL4043 KDYD WHITE ROCK Judy Burr is pointing to galena/silver mineralization. Photo is shot from the road in an easterly direction (IMG_3942.jpg):

(ii) MINFILE 082M 069 SILVER MINNOW (aka SILVER MINERAL): The SILVER MINNOW is described as epigenetic hydrothermal polymetallic veins Ag-Pb-Zn+/-Au; and with a vein character. The significant mineral is galena; and it is associated with quartz and calcite.

In 1925, a sample assayed Ag 925.7 grams per tonne and Au 0.69 grams per tonne. Refer to the MINFILE website for more specific references and information; and also Assessment Report 32383, 33190 and 33744 by David J. Piggin and Astral/Orex. In 2011, **Sample 10E41181 SMQCH7 Ag 171 ppm; Pb 14.4 %; Zn 6490 ppm (over 1 m)**; and in 2017,

BR17-AP03: Au 0.116 ppm; Ag 428 ppm; Fe 1.46 percent; Pb >20 percent; S 6.33 percent; Sb 430 ppm; Zn 1.605 percent
10E41477_BR17SM1: Au 0.11 ppm; Ag 308 ppm; Pb 20 percent; S 3.04 percent; Sb 277 ppm; Zn 1.23 percent
BR17-AP02: Ag 9.17 ppm; Ca 0.5 percent; Fe 0.63 percent; Pb 5100 ppm; Sb 13.4 ppm; Zn 1030 ppm

The SILVER MINNOW is located just south of the southeast corner of DL 4023 KDYD WHITE ROCK MC in an area of large quartz veins – (up to 5.8 metres wide). The following Illustrations and results were taken from ARIS 33190.

TABLE 5: Partial List of SILVER MINNOW Rock Anomalies - Selected Rock Anomalies for selected elements:

SELECTED ROCKS only	**Anomalous values shown in bold black**						
Sample Tag	**Au_ppb**	**Ag_ppm**	**Pb %**	**S %**	**Sb ppm**	**Te_ppm**	**Zn ppm**
10E41181 SMQCH7 SILVER MINNOW ADIT ONE	100	**171**	**14.4**	**2.27**	**198.5**	**30.4**	**6490**
Note: Sample 10E41181 SMQCH7 is adjacent to 10E41180 SM11EBCH1 at SILVER MINNOW ADIT ONE. See photos in HISTORY section; also close-up photo below.							
Sample Tag	**Au_ppb**	**Ag_ppm**	**Pb %**	**S %**	**Sb ppm**	**Te_ppm**	**Zn ppm**
10E41199 SM11FRA (see photo below)		**28**	**1.325**	0.92	**382**	2.71	**6970**
10E41021 SM11CHR1		**14.35**	**1.16**		**34.8**	1.64	**1880**
Sample Tag	**Au_ppb**	**Ag_ppm**	**Cu ppm**	**Pb pppm**	**Sb ppm**	**Te_ppm**	**Zn ppm**
10E41016 SM11R999	29.2	**50.4**	**1475**	**1275**	**533**	0.21	**2990**

10E41017 SM11R999A	55.5	**26.5**	**1465**	**1990**	**590**	0.36	**1600**
10E41182 SMQCH1		**12.8**	**40.8**	**9800**	22.8	1.97	**3280**
10E41198 SM11FRA (see photo below)		**10.55**	**185.5**	**6510**	38.4	1.13	**839**
10E41180 R/S SM11EBCH1 (see Note below)	21.4	**7.12**	**94.1**	**4410**	15.35	1.08	**4360**
10E41180 SM11EBCH1 (See Note below.)	21.2	**5.69**	**104.5**	**4100**	17.5	0.93	**5360**
Note: Sample is adjacent to 10E41180 SM11EBCH1 at SILVER MINNOW ADIT ONE see photos in HISTORY section; also close-up photo below.							
10E41184 SMQCH3		**2.38**	**51.4**	**1230**	39.4	0.23	**871**
10E41023 SM11CHR1-3		**1.89**		**1910**			**2510**
Sample Tag	**Al_%**	**Co_ppm**	**Cr ppm**	**Fe %**	**Mg %**	**Ni_ppm**	**P ppm**
10E41334 BR11FR59	**1.70**	**117**	**1152**	**>10**	**6.49**	**1027**	**670**

ILLUSTRATION #6: **SILVER MINNOW ADIT ONE** referred to as **MINFILE 082M 069 SILVER.** Judy is pointing to semi-massive galena/silver mineralization at the contact between the EBG on the right; and on the left a large near vertical (5.8m wide) quartz veins on the left. The contact is near vertical but dipping down to the south. The adit is believed to be buried in earth fill under Judy's feet (162 cm tall). The photo is shot in a NE direction. (excerpt MVI_0330.jpg):

ILLUSTRATION #7 : Galena and silver mineralization from a channel sample at **SILVER MINNOW ADIT ONE**:**10E41181 SMQCH7 - Ag 171 ppm; Pb 14.4 %; S 2.27 %; Sb 198.5 ppm; Te 30.4 ppm; Zn 6490 ppm over 1m.** Location: MINFILE 082M 069 SILVER MINNOW (aka SILVER MINERAL). In the background is the contact between the EBG on the right 30% of photo; and on the left the EBGt left 70% of photo. (IMG_0522.jpg):

(iii) MINFILE 082M 222 CAD – Located East of the BARRIERE RIDGE Claims:

The CAD is described as epigenetic polymetallic veins Ag-Pb-Zn+/-Au; and with a vein character. Significant minerals are pyrite, spalerite, and galena; and associated with quartz and calcite. The alteration type is chloritic. Assessment Report 13168 reported Ag 15.6 grams per tonne, Pb 0.04 %, Zn 1.2 % over 10 cm vein width.

A number drilling programs occurred at CAD and the drill holes are summarized in a spreadsheet within the APPENDIX.

SILVERGAL SHOWING: The SILVERGAL was discovered by David J. Piggin for Astral Mining Corporation in 2010 and reported in Assessment Report 32383. In 2017, The SILVERGAL showing yielded: **BR17-AP04: Au 0.430 ppm; Ag 357 ppm; Bi 462 ppm; Pb 20 percent; S 3.04 percent; Sb 92.3 ppm; Zn 121 ppm**; and previously the SILVERGAL reported as follows:

TABLE 6: SILVERGAL - Selected Rock Anomalies For Selected Elements):

SILVERGAL Showing: Outcrop on log landing with quartz/limestone with galena, silver, chalcopyrite, malachite	
10E41157 BR11Q9C	Ag 220 g/t, Pb 12.4 %, Bi 270 ppm, Cr 202 ppm, S 1.69 %, Se 110 ppm
10E41157 BR11Q9C repeat	Ag 220 g/t, Pb 12.4 %, Bi 270 ppm, Cr 208 ppm, S 1.78 %, Se 110 ppm
10E41157 BR11Q9C respit	Ag 220 g/t, Pb 12.4 %, Bi 285 ppm, Cr 226 ppm, S 1.80 %, Se 120 ppm
10E41160 BR11Q9D	Au 25 ppb, Ag 172 g/t, As 600 ppm, Cu 7470 ppm, Pb 795 ppm, Sb >2000 ppm, Zn 3076 ppm
10E41160 BR11Q9D repeat	Au 30 ppb, Ag 172 g/t, As 600 ppm, Cu 7470 ppm, Pb 795 ppm, Sb >2000 ppm, Zn 3076 ppm
10E41158 BR11Q9A	Au 20 ppb, Ag 5.8 g/t, Bi 5 ppm, Cr 232 ppm, Pb 2250 ppm
10E41172 BR11-104	Ag 27.2 ppm g/t, Cu 244 ppm
10E41174 BR11-106	Ag 6.8 ppm, Ca > 10 %, Cu 428 ppm, Mg 8.88 %, P 1080 ppm, Sb 245 ppm, Zn 176 ppm

ILLUSTRATION # 8: SILVERGAL showing close-up galena in sample **10E41160 BR11Q9D** (IMG_3695a.JPG).

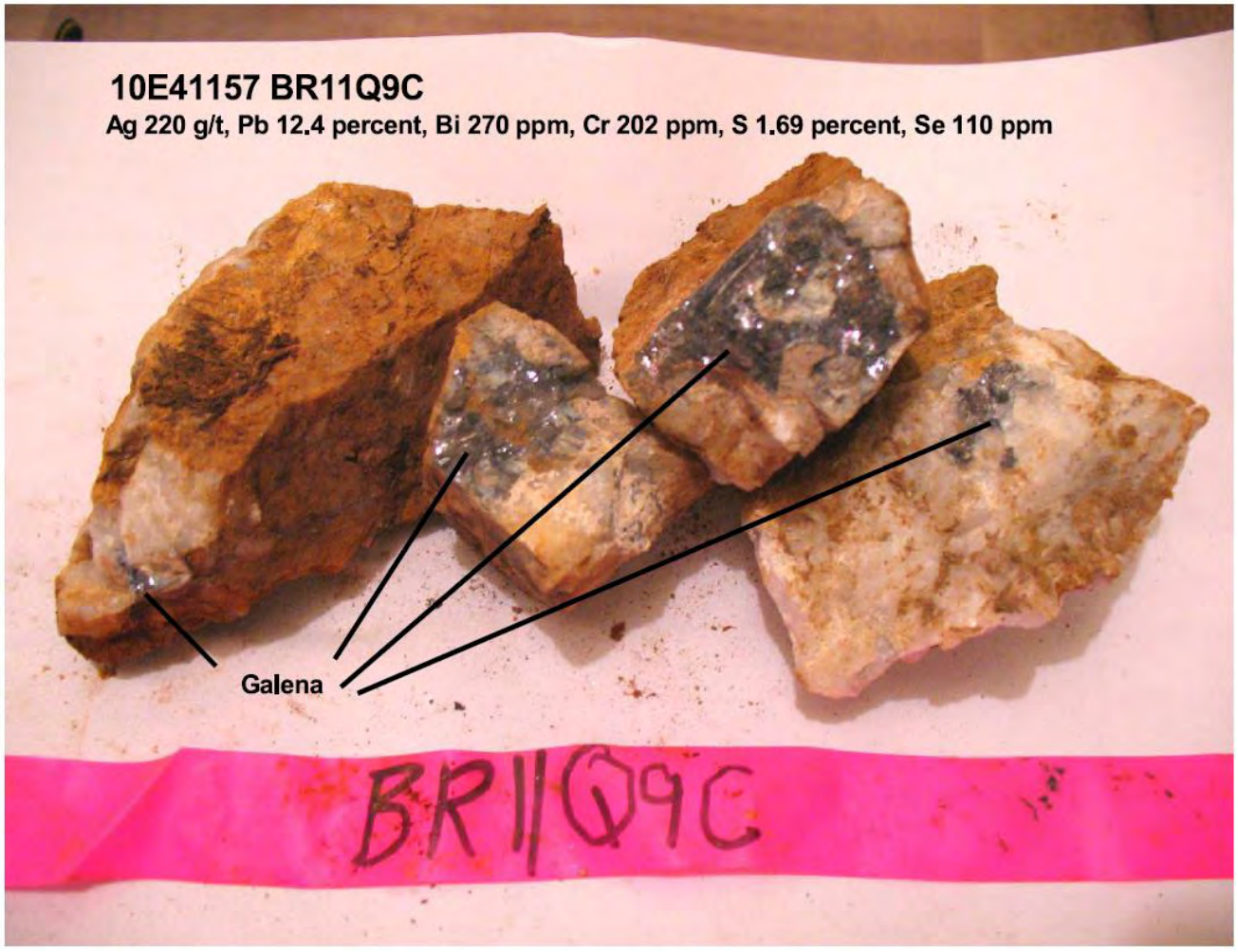
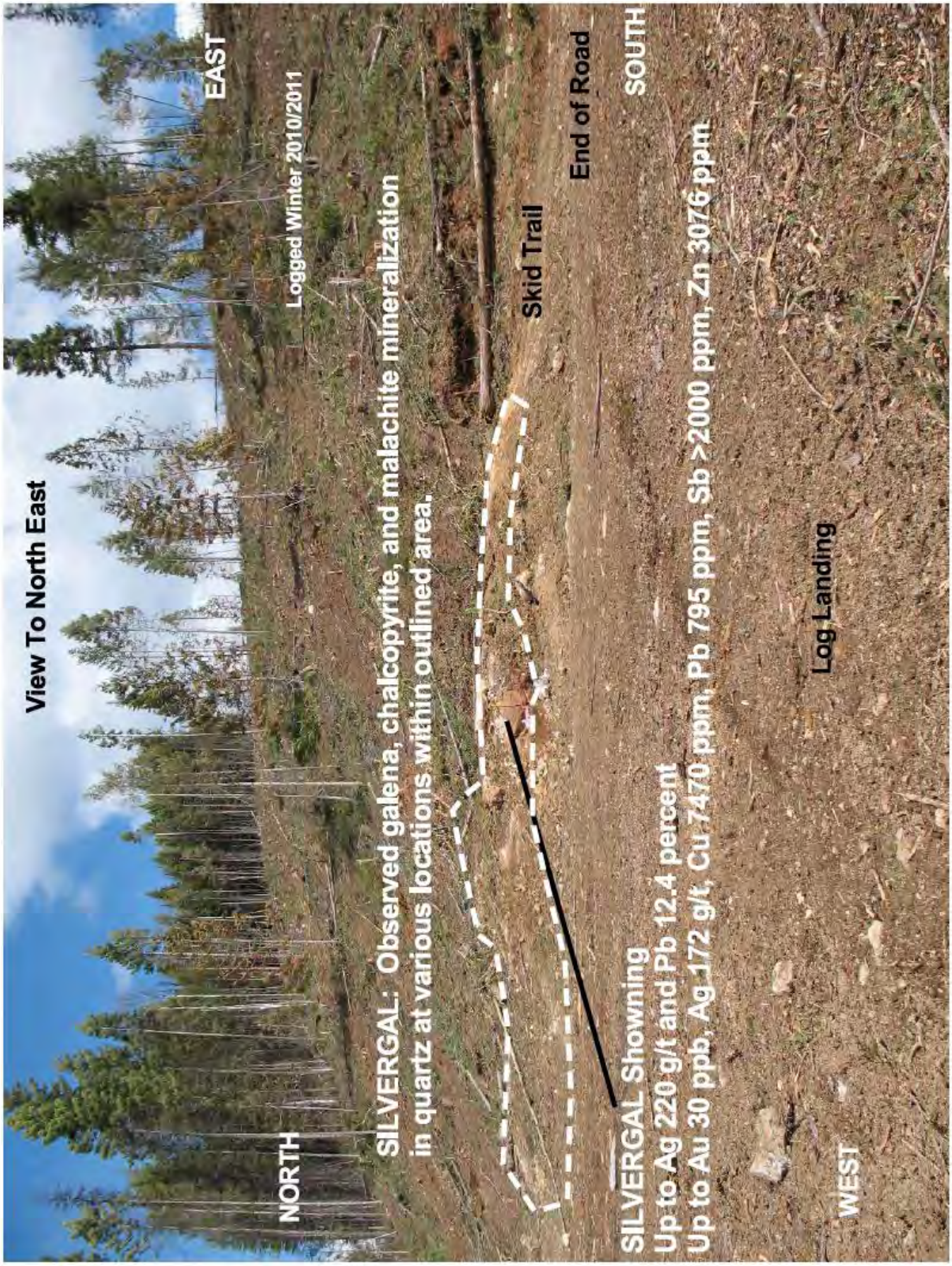


ILLUSTRATION # 9: SILVERGAL showing in overview taken in northwesterly direction (IMG_3676.JPG).



(iv) SILVERBOY Showing: As reported in ARIS 34651, a new Ag Pb Zn discovery was made as follows (see TABLE and photographs in the following pages):

TABLE 7: Partial List of Rock Anomalies

Sample Tag	Assay Certificate(s)	Comments	Anomalous Results
SILVERBOY Discovery **10E41072 SM13R2**	KL13184934	On strike 10 metres from 10E41071 SM13R1MALIC. Massive limestone outcrop, galena in Quartz veins veinlets stockwork Zone 11, 297919.055 E. 5687392.442 N.	**Ag 246 ppm; Bi 56.6 ppm; Cu 171.5 ppm; Cd 190 ppm; Pb 13.55 %; Sb 237 ppm; Se 35 ppm; Sn 2 ppm; Te 29.3 ppm; Zn 5.34 %**
10E41071 SM13R1MALIC **(10m from SILVERBOY)**	KL13184933	On strike 10 metres from SILVERBOY discovery 10E41072 SM13R2. Near vertical 80 deg quartz vein, strike 190 deg, with malachite stain, galena, in old trench cutslope. Zone 11, 2 297917.094 E. 5687399.071 N.	**Ag 6.88 ppm; Ca 14.7 %; Cu 479 ppm; Mg 2.44 %; Pb 527 ppm; Sb 139.5 ppm; Sr 509 ppm; Zn 1400 ppm**

ILLUSTRATION #10: Close up of SILVERBOY showing. Sample **10E41072_SM13R2: Ag 246 ppm; Cu 171.5 ppm; Pb 13.55 %; Sb 237 ppm; Zn 5.34 %.** Limestone with quartz veins, veinlets, and stockwork.(IMG_1549.jpg)

ILLUSTRATION #11: Close up of SILVERBOY sample: Limestone with quartz veins, veinlets, and stockwork. **10E41072_SM13R2: Ag 246 ppm; Cu 171.5 ppm; Pb 13.55 %; Sb 237 ppm; Zn 5.34 %** (IMG_1668.jpg)

The SILVERBOY host rock is similar to the SILVERGAL showing – a massive limestone outcrop with silver-galena-sphalerite-malachite mineralization (Ag Pb Zn Cu) in quartz veins-veinlets-stockwork. At SILVERBOY a subtle malachite staining was observed in a quartz vein exposed in a machine trench (sample 10E41071 SM13R1MALIC) and followed along strike 10 metres to the SILVERBOY discovery at sample 10E41072 SM13R2.

For reference purposes, the SILVERBOY discovery is located about:

- 384 metres northeast of the WHITE ROCK MINFILE Adit No. 1.
- 420 metres north of the SILVER MINNOW adit.
- 3.4 km north of the SILVERGAL discovery.

The SILVERBOY host rock is identical to the SILVERGAL showing therefore, there is a need to prospect for similar mineralized outcrops between the SILVERBOY and SILVER MINNOW zones (420 m to the south); and the SILVERGAL zone about 3.4 km to the south. It appears the SILVERBOY grab sample grades are similar to the SILVERGAL and SILVER MINNOW showings.

In addition to this in 2011, within close proximity to the SILVERBOY, an area of limestone quartz breccia of prospective (subtle) malachite staining was observed and requires additional sampling and trenching. This malachite staining was sampled (10E41016 SM11R999 and 10E41017 SM11R999A) and reported in ARIS 33190.

10E41016 SM11R999: Au 29.2 ppb, Ag 50.4 ppm, Cu 1475 ppm, Pb 1275 ppm, Sb 533 ppm, Zn 2990 ppm.

High Priority Target: The SILVERBOY and limestone breccia area are a high priority target for a soil geochemical and ground geophysical surveys, trenching and drilling. A soil grid, called SILVER MINNOW1 GRID, was reported in ARIS 33190 report. It was located almost half way between SILVERBOY/SILVER MINNOW, and the SILVERGAL discovery. This soil grid obtained anomalous results with Au (up to 26 ppb), Ag (up to 0.7 ppm), Ca (up to 1.32 %), Cu (up to 149.3 ppm), Mo (up to 1.54 ppm), Sb (up to 1.76 ppm), and Zn (up to 195.2 ppm). There is a need to expand this soil grid and determine if there are mineralized zones between the SILVERBOY and SILVER MINNOW zones; and the SILVERGAL zone. The grid could be used for geological mapping.

(v) SILVER TRAIL SHOWING: A new Ag Pb Zn discovery [Zone 11. 298003.448 E. 5686986.491 N.] called the SILVER TRAIL Showing was made on June 9, 2014. The Ag Pb Zn mineralization was in a limestone or dolostone, quartz veinlets, malachite, galena blebs and veinlets, and possible Ag. The following two samples were the best results.

10E41081_BR14R73:
Ag 117 ppm; Ca 19.2 %; Cu 1970 ppm; Mg 10.65 %; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %
10E41085_BR14R77: Ag 19.7 ppm; Ca 18.65 %; Mg 9.81 %; Pb 5060 ppm

In 2017, the SILVER TRAIL assayed **BR17-AP01: Ag 73.7 ppm; Ca 20.9 percent; Cu 903 ppm; Fe 1.26 percent; Mg 11.6 percent; Pb 1.795 percent; Sb 107.5 ppm; Zn 5950 ppm.**

The showing was located in the cutslope of an exploration access trail used to access the SILVER MINNOW MINFILE showing. The following is a brief summary of rock samples collected, results and anomalous results.

TABLE 8: SILVER TRAIL ROCK SAMPLES: See photographs given in the following pages

Sample Tag; and Waypoint Name	Comments	Anomalous Results (in Bold); and Other Results
10E41081_BR14R73	Silver Trail Showing: trail cutslope outcrop; limestone or dolostone, quartz veinlets, malachite sheet, galena blebs and veinlets, possible Ag	**Ag 117 ppm; Ca 19.2 %; Cu 1970 ppm; Mg 10.65 %; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %**
10E41085_BR14R77	Silver Trail Showing: trail cut slope outcrop; limestone or dolostone, white quartz veinlets, galena blebs	**Ag 19.7 ppm; Ca 18.65 %; Mg 9.81 %; Pb 5060 ppm**
10E41077_BR14R70	Silver Trail Showing: trail cutslope; tan to light brown limestone or dolostone, quartz veinlets, malchite, galena blebs and veinlets	**Ag 18.65; Ca 21.5 %; Mg 10.5 %; Pb 1410 ppm**
10E41083_BR14R75	Silver Trail Showing: trail cutslope outcrop; limestone or dolostone, quartz veinlets, malachite, galena veins and blebs, possible Ag	**Ag 16.8 ppm; Ca 20.5 %; Mg 11 %; Pb 8780 ppm; Zn 2680 ppm**
10E41078_BR14R71	Silver Trail Showing: trail cutslope; tan to light brown limestone or dolostone, quartz, veinlets, malchite, galena	**Ag 12.95; Ca 22.1 %; Mg 10.8 %; Pb 6150 ppm; Sb 125.5 ppm; Zn 1020 ppm**
10E41084_BR14R76	Silver Trail Showing: trail cut slope outcrop; limestone or dolostone, quartz veinlets, malachite possible galena and silver	**Ag 7.68 ppm; Ca 21.4 %; Mg 11.55 %; Pb 448 ppm**

The following are a number of overview and/or detailed photographs of selected samples from the SILVER TRAIL Showing **TABLE 18** given above

ILLUSTRATION #12: Overview of the SILVER TRAIL Showing giving sample locations and anomalous results. The showing is situated on the cut slope of an exploration trail. Limestone with quartz veins, veinlets, and stockwork.
IMG_1822_10E41081_BR14R73_10E41082_BR14R74_10E41083_BR14R75.jpg

ILLUSTRATION #13: SILVER TRAIL Showing – sample close-up **10E41081_BR14R73 - Ag 117 ppm; Ca 19.2 %; Cu 1970 ppm; Mg 10.65 %; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %.** IMG_1863_10E41081_BR14R73.jpg

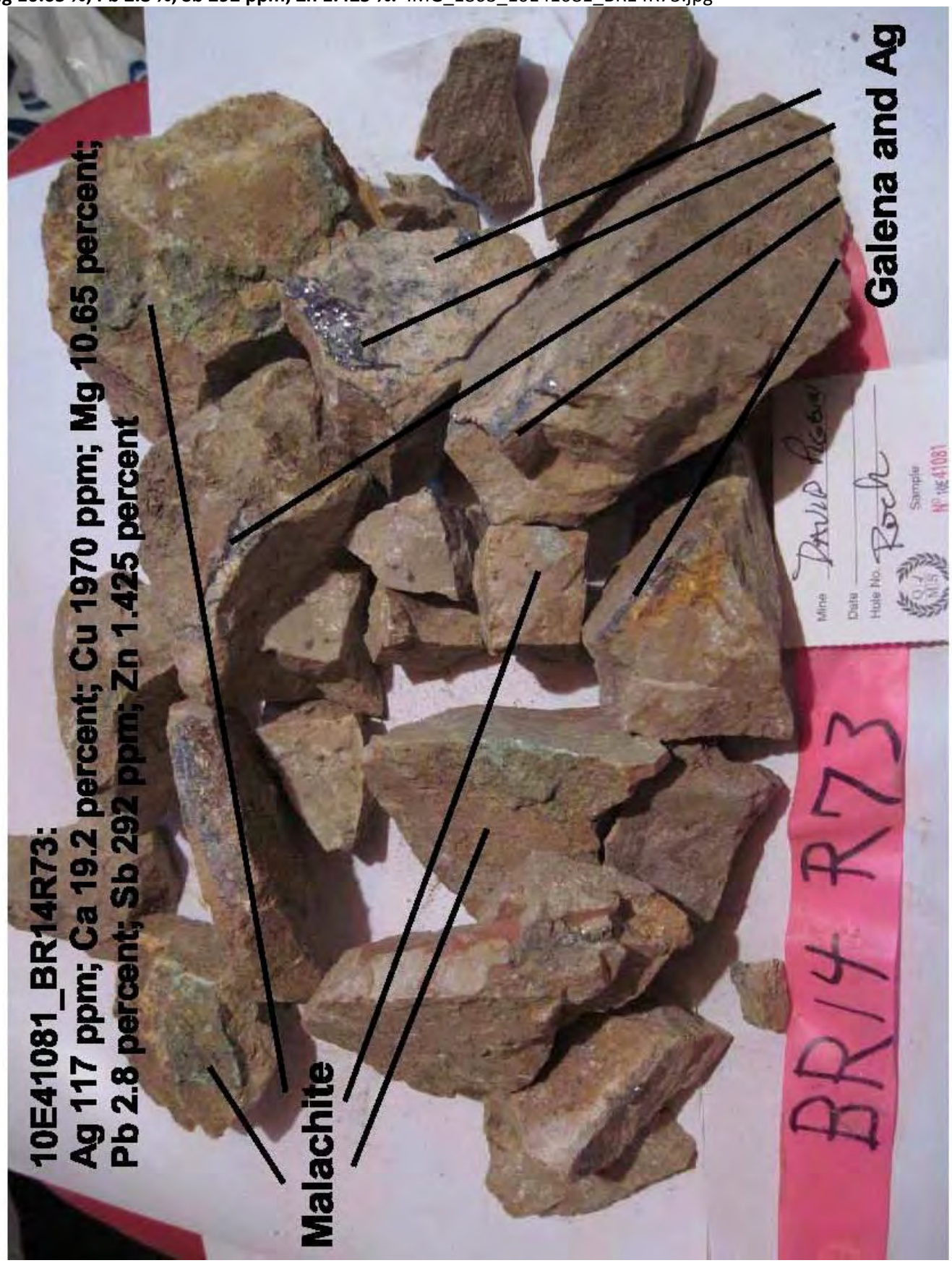


ILLUSTRATION #14: SILVER TRAIL Showing - macro-zoom of sample **10E41081_BR14R73 - Ag 117 ppm; Ca 19.2%; Cu 1970 ppm; Mg 10.65 %; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %.** IMG_1864_10E41081_BR14R73.jpg

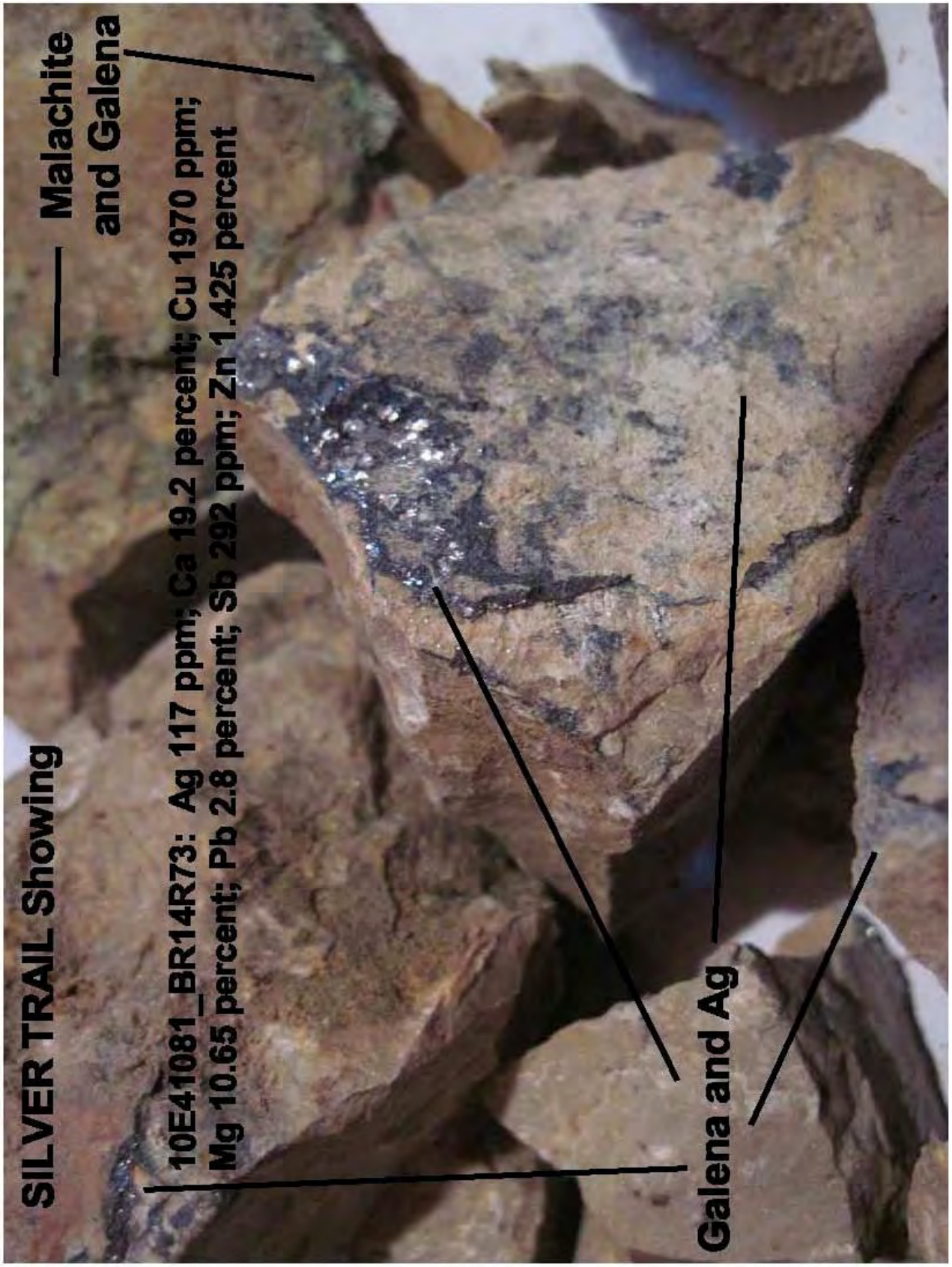


ILLUSTRATION #15: Close-up of SILVER TRAIL Showing giving sample location for 10E41084_BR14R76 showing quartz veins and veinlets in limestone or dolostone. IMG_1828_10E41084_BR14R76.jpg

(vi) Miscellaneous MINFILE Occurrences: The following is a partial list of various MINFILE Occurrences outside the BARRIERE RIDGE Claims. In the interest of brevity they are not discussed here. MINFILE 082M 051, MINFILE 082M 061, MINFILE 082M 110, MINFILE 082M 223, MINFILE 082M 300, MINFILE 082M 059, MINFILE 082M 060, MINFILE 082M 063, MINFILE 082M 067, MINFILE 082M 072, MINFILE 082M 130, MINFILE 082M 131, MINFILE 082M 219, MINFILE 082M 220, MINFILE 082M 221, MINFILE 092P 160

(b) Assessment Reports:

There are at least 19 Assessment Reports within located within the BARRIERE RIDGE boundary, based on the Assessment Report Information System (ARIS). In the interest of brevity a detailed discussion of the results of the work is not included in this report. The reports can be downloaded from the following website if additional information is required. http://www.empr.gov.bc.ca/Mining/Geoscience/ARIS/Pages/default.aspx . The following is a complete list of these 21 ARIS reports:

- 03350 Duncanex Resources., B.J. Price and JR. Woodcock., September 27, 1971, $ 9,989.77
- 05363 Richard A. Rabbitt, D.L. Rabbit, 1974 $ 2,200.40
- 08210 Cyprus Anvil Mining Corporation, B.V. Hall and P.E. Walcott, July 11, 1980, $ 10,190.93
- 12847A Noranda Exploration Company Limited, G. Shevchenko, February 1985 $ 7,059.07
- 12847B Noranda Exploration Company Limited, L. Bradish, December 1984 $ 19,215.00
- 13168 J.D. Graham & Noranda Exploration Company Limited, R.G. Wilson, December 1984, $ 15,974.38
- 13207 Racer Resources Ltd (Ashton & Graham), J.D. Blanchflower, December 4, 2011, $ 24,301.05
- 13297 Mammoth Resources Limited, G.J. Dickie and G.D. Hodgson, November 1984, $12,025.00
- 13793 Racer Resources Ltd (Ashton & Graham), J.D. Blanchflower, July 25, 1985, $ 8,625.65
- 14123 J.D. Graham and Taywin Resources Ltd,), J.D. Blanchflower, September 19, 1985, $ 18, 635.18
- 14397 J.D. Graham & Noranda Exploration Company Limited, G. Shevchenko, February 1986, $ 21,830.05
- 16190 T.H. Thompson & National Resources Exploration Ltd, B.W. Kyba, July 15, 1987, $ 2,549.64
- 16331 J.D. Graham & Merritech Development Corporation, J.D. Blanchflower, February 27, 1987,$ 57, 271.32
- 17739 National Resources Exploration Ltd, D.C. Miller, April 20, 1988, $7,767.55
- 18489 Minnova Inc., D.W. Blackadar, February 12, 1989, a portion of $ 60,035.00
- 19047 National Resources Exploration Ltd & Minnova Inc, C.J. Clayton, September 7, 1989, $1,109.50
- 19173 Falconbridge Limited, S.G. Clemmer, September 1989, $ 2,739.83
- 19851 National Resources Exploration Ltd & Minnova Inc, D.R. Heberlein, March 1990, $32,000.00
- 22956 Rich Coast Resources Ltd, Michael Fox, March 23, 1993, $5,801.80
- 32383 Astral Mining Corporation and David J. Piggin, May 31 2011, $21,824.78
- 33190 Astral Mining Corporation, David J. Piggin, July 18, 2012, $ 344,154.71
  HONEYMOON $216,077.90 and BARRIERE RIDGE $128,076.81
- 33744 Astral Mining Corporation, Orex Minerals Inc, David J. Piggin. March 27, 2013. $ 97,303.43.
  HONEYMOON $ 67,713.37 and BARRIERE RIDGE f$ 29,590.06.
- 34651 David J. Piggin. March 18, 2014. BARRIERE RIDGE, $ 39,377.26.
- 35500 David J. Piggin. August 29, 2016. BARRIERE RIDGE $ 46,111.09.
- 36263 David J. Piggin. January 30, 2017. BARRIERE RIDGE $33,088.48.
- 37066 David J. Piggin and Mantra Resources Inc, November 7, 2017. BARRIERE RIDGE $48,109.99

(c) Historic Drilling – Within or Near BARRIERE RIDGE:

In 2012, a detailed review of the above BARRIERE RIDGE ARIS reports indicated that between 1984 and 1988, 16 diamond drill holes were completed for 1,836.60 metres. The drill sites have not been located in the field so additional research is required to find and digitize the drill logs. The following is a brief summary of the drilling locations within or adjacent to or near BARRIERE RIDGE.

- In 1984, MINFILE 082M 222 CAD**:** ARIS Report 13168, Noranda Inc. reported two NQ diamond drill holes (DDH) CAD 84-1 and CAD 84.-2 for a total of 132.2 metres. CAD 84-2 best samples in three separate veins:

Ag 15.6 g/t; Zn 12,000 ppm; Pb 392 ppm over 0.1 metres.
Ag 4.6 g/t; Zn 136 ppm; Pb 1070 ppm over 0.1 metres.
Ag 3.6 g/t; Zn 500 ppm; Pb 1020 ppm over 0.6 metres.

- In 1985, MINFILE 082M 222 CAD: ARIS Report 14397 Noranda Inc. reported two NQ diamond drill holes (DDH) CAD 85-1 and CAD 85-2 for a total of 184.7 metres. The drill holes failed to intersect mineralization.

- In 1987, MINFILE 082M 222 CAD: ARIS Report 16331 Merritech Development Corporation reported three NQ diamond drill holes (DDH) CAD 87-1, CAD 87-2, and CAD 87-3 for a total of 394.11 metres. The drill holes failed to intersect economic mineralization.
  CAD 87-1: Au 30 ppb, Ag 1 ppm, Pb 323 ppm from 545' to 550'.
  CAD 87-2: Cu 122 ppm from 190' to 195'; and CAD 87-3: Pb 122 ppm from 300' to 305'.

- In 1987, drilling within Tenure 744542: Maps provided in ARIS Report 17739 (and 16190) National Resources Exploration Ltd indicated four diamond drill sites DDH 87-1, DDH 87-2, DDH 87-3, and DDH 87-4 on a property map, but no record or drill logs are given showing results.

- In 1989, ARIS Report 19851 Minnova Inc. reported 5 NQ drill holes totaling 524.6 metres. The holes were MBD89-1 (102.7 m) and MBD89-2 (96.6 m) both within Tenure 744542; hole MBD89-3 (105.8 m) south end of Tenure 744562; both drill holes MBD89-4 (124.1 m) and MBD89-5 (95.4 m) are outside the current claim boundary. No significant mineralization or alteration was encountered.

Other ARIS Reports: In addition to this, there are a number (15+) ARIS reports located near the boundary of BARRIERE RIDGE on adjacent mineral claims. In the interest of brevity they are not listed here but are available through the Exploration Assistant (Map Place) and ARIS program websites.

(d) Prospectors Assistance Program Grants:

At least 4 Prospector Assistance Grants were issued in the general vicinity of the North Barriere Lakes and East Barriere Lakes. In 1998, the author David J. Piggin - Prospector Assistance Grant #98/99 P94 (1998-43) for $ 10,000.00. Grassroots exploration work was completed over the eastern half of the BARRIERE RIDGE claims and on the HONEYMOON claims**. A number of significant Au, Ag, and base metal anomalies were found in stream sediment and soil samples.** A soil sieve sample was collected south of North Barriere Lake and the sieve sample was a significant gold in soils anomaly as follows:
Sample 13C (Tag 103282) Certificate AK-0222i.xls: (UTM NAD 83 Zone 11, 300937.7E and 5688537.2N)
Au 555 ppb, Ag 0.8 ppm, As 25 ppm, Bi 15 ppm, Mo 6 ppm, Pb 70 ppm, Zn 215 ppm.

TABLE 9: Sieve sample, Weev 13C-09 (Tag 103213) Certificate AK98- 0595i.xls returned the following values.

Sample Tag #	Weight (grams)	Mesh Size	Au ppb
103213 Weev 13C-09	91	+32	15
	53	+60	35
	37	+80	20
	62	+140	35
	38	+230	35
	41	-230	65
Repeat		+80	105

- In 1998, Camille Berube - Prospector Assistance Grant #1998/99 P23 (1998-23) for $ 10,000.00. The CAM-GLORIA MINFILE 082M-266 was discovered during this exploration program.

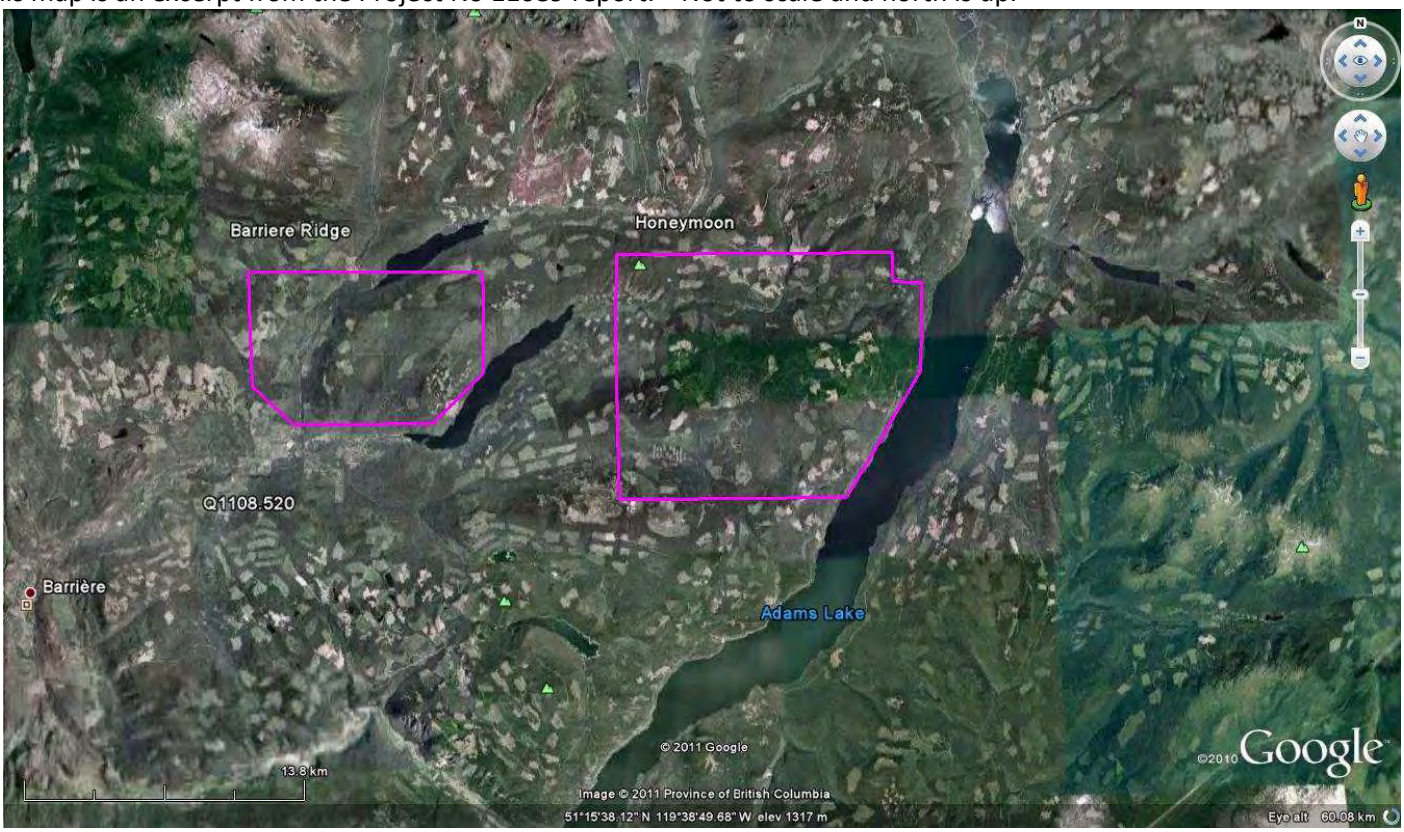
- In 2000, Leonard P. Piggin - Prospector Assistance Grant #2000/01 P73 (2000-22) for $ 7,500.00. The LUCKY BEAR MINFILE 082M-275 (Au Bi, minor W) was discovered during this program. Numerous anomalous stream sediments and moss mats were collected.
- In 2000, Camille Berube - Prospector Assistance Grant #2000/01 P43 (2000-13) for $ 10,000.00. The LUCKY BEAR MINFILE 082M-275 (Au Bi, minor W) was discovered during this program.

A copy of each report can found on the following website.
http://www.empr.gov.bc.ca/Mining/Geoscience/PropertyFile/Pages/1998pros.aspx

4. Airborne Geophysics by Fugro, Including An Interpretations Report.

In 2011 (ARIS 33190), an airborne geophysical survey was completed on selected areas by Fugro Airborne Surveys – ***Logistics and Processing Report: Helicopter-borne HELITEM Time Domain Electromagnetic and Magnetic Geophysical Survey – Project No. 11089*** dated January 23, 2012 (see ILLUSTRATION # 13 below). The survey was flown from October 21, 2011 to November 9, 2011 and cost $ 239,146.00. Total coverage of the survey blocks amounted to 1334 km (1121.4 km of it was accepted). Due to bad weather over the blocks survey was stopped by the Astral Mining Corp. before the Fugro's crew was able to re-flight lines L20270-L22420 (Honeymoon block). In the interest of brevity the full report, submitted by Furo Airborne Surveys, was included in ARIS Report 33190 and is not included here.

ILLUSTRATION # 16: Location of the HONEYMOON and BARRIERE RIDGE airborne geophysical survey completed in 2011. This map is an excerpt from the Project No 11089 report. Not to scale and north is up.



Based on their report *"...The purpose of the survey was to determine the existence and locations of bedrock conductors and for better understanding of the subsurface geology within the survey areas. The EM data and the magnetic data were processed to produce images and profiles that are indicative of the magnetic and conductive properties of the survey areas. A GPS electronic navigation system ensured accurate positioning of the geophysical data with respect to the base maps..."* Page 4.

The full report for Project No 11089, submitted by Fugro Airborne Surveys, has been reported in the APPENDIX of ARIS Report 33190 dated July 18, 2013. In the interest of brevity, the Project No. 11089 report is not given here.

The Project No. 11089 report identified numerous significant geological and contract related features as well as geophysical and conductive features which require extensive exploration such as prospecting, geochemical surveys, geological mapping, ground geophysical surveys, trenching and drilling.

In 2012, Fugro was contracted to re-process the Project No. 11089 data for interpretation and targeting purposes. They subsequently submitted their report ***Magnetic and EM Interpretation Airborne Magnetic and HELITEM Survey - BARRIERE RIDGE AND HONEYMOON Blocks, British Columbia - Job No. 12578*** dated February 2013. The report cost $ 29,500.00 and is enclosed in the APPENDIX of ARIS Report 33744 dated March 27, 2013. In the interest of brevity, the Job No. 12578 report is not given here. In general terms, Job No. 12578 reported significant results and priority targets as follows:

- Significant conductors within the survey area and were outlined on interpretation maps. Conductors were classified as conductive zones, points, and axes. A list of anomalous EM responses, for detailed review and ground follow-up, were provided in the Fugro report.

At BARRIERE RIDGE, the magnetic grid showed a magnetic low, with a gently rippling character in the western portion of the block, and a more complex and highly magnetic area to the centre and northeast. High conductivities exist in both the east and west with a low conductivity area running nearly N-S through the mid-western portion of the block, and along the north in the eastern portion of the block. There is a low conductivity area in the southeast.

Conductivity depth (CDI) sections identified major faults and in many cases these had been identified from the magnetic signatures. Conductivity depth identified some new faults. The dips of the faults can also be identified using CDI sections.

5. Proposed Ground Geophysics (also Proposed Soil Geochemical Survey).

A number of initial (primary) ground geophysical targets were identified by Dale Brittliffe, P. Geo., (Astra/Orex) based on historical/recent data and airborne geophysics. In the fall of 2012, in advance of a large scale ground geophysical survey, a small ground geophysics survey totaling 9,600 lineal metres was recommended as follows:

SILVER MINNOW: (aka SILVER MINNOW2 GRID)

- 3 lines 1400 lineal metres each; Zone 11 central line 5,686,900mN, 297,400mE – 298,800mE.
- Lines 100 metres apart and stations every 25 metres.
- No soil samples collected to date.

SILVERGAL: (aka SILVERGAL1 GRID from ARIS 33190 plus additional stations (east-west) from ARIS 33744.

- 3 lines 1800 lineal metres each; Zone 11 central line 5,684,200mN, 298,600mE – 300,400mE.
- Stations every 25 metres.
- The original SILVERGAL1 GRID was 2 parallel lines at 200 meters spacing; and 82 soil samples were collected and assayed.

The previously established SILVER MINNOW1 GRID had a soil geochemical survey (50 soil samples) but was not proposed for ground geophysics at the time due financial restrictions. It is located about halfway between the SILVERGAL showing and the SILVER MINNOW MINNFILE. The purpose of the small geophysical survey area was to provide a starting point data for a much larger scale survey. These ground geophysics survey lines were to be used for a preliminary soil geochemical survey as well.

6. Soil Geochemical Surveys (see Proposed Ground Geophysics in previous section).

The following section is described in three sections as follows: **SILVERGAL1 GRID**, **SILVER MINNOW1 GRID**, and **Prospecting Soil Samples.** In ARIS 33190, the results of the soil grids SILVERGAL1 (82 samples) and SILVER MINNOW1 GRID (50 samples) were reported. The following tables show selected results (gold and silver only) ARIS 33190. The following data is taken from ARIS 33190. For more detailed results including spreadsheets, maps and assays refer to ARIS 33190.

SILVERGAL1 GRID: The following two tables, **TABLE 10 and TABLE 11** from ARIS 33190, show a few selected gold and silver anomalies for selected elements.

TABLE 10: SILVERGAL1 - Selected Gold Soil Anomalies For Selected Elements: (from ARIS 33190)

SELECTED SOILS only	**SILVERGAL1 GRID – GOLD LEADING with Au 6.8 ppb at 90 %ile: Anomalous values shown (in bold black text) for selected elements.**								
Sample Tag 14E41213	**Au ppb repeat**	**W ppm repeat**	**Au ppb**	**W ppm**	**Sample Tag 14E41233**		**Au ppm**	**Se ppm**	
	80	**0.20**	**69**	**0.20**			**30**	**0.30**	
Sample Tag 14E41239 repeat	**Au_ppb**	**Ag ppm**	**Ca %**	**Cu ppm**	**Fe %**	**Ge ppm**	**Hg ppm**	**K %**	**La ppm**
	11	**0.7**	**0.55**	**55.6**	**4.28**	**34.8**	**35**	**0.23**	**14.5**
	Mg %	**Nb ppm**	**Rb ppm**	**Sc ppm**	**Sr ppm**	**Te ppm**	**T %**	**Tl ppm**	Zn ppm
	0.80	**1.84**	**18.7**	**5.1**	**24**	**0.12**	**0.131**	**0.1**	113.70
Sample Tag 14E41270	**Au_ppb**	Ag ppm	**As ppm**	**Bi ppm**	**Cu ppm**	**La ppm**	**Se ppm**	**Te ppm**	**Y ppm**
	10	0.4	**9.2**	**0.32**	**71.5**	**17**	**0.4**	**0.1**	**10.2**
Sample Tag 14E41232	**Au_ppb**	Ag ppm	**Mo ppm**	**Se ppm**	**Sample Tag 14E41232**		**Au ppm**	**Se ppm**	
	9.0	0.2	**1.18**	**0.8**			**7.0**	**0.3**	
Sample Tags: 14E41235 14E41230 14E41231 14E41240 14E41254 were all anomalous with Au = 7.0 ppb									

TABLE 11: SILVERGAL1 - Selected Silver Soil Anomalies For Selected Elements: (from ARIS 33190)

SELECTED SOILS only	**SILVERGAL1 GRID – SILVER LEADING with Ag 0.5ppm at 90 %ile: Anomalous values shown (in bold black text) for selected elements.**								
Sample Tag 14E41213	Au ppb	**Ag ppm**	**Al %**	**Be ppm**	**Bi ppm**	**Ca %**	**Cd ppm**	**Fe %**	**Ga ppm**
	2.0	**1.1**	**2.74**	**0.80**	**4.0**	**1.29**	**0.5**	**6.04**	**8.0**
	Hg ppm	**Mn ppm**	**Mo ppm**	**Nb ppm**	**Pb ppm**	**S %**	**Sb ppm**	**Sc ppm**	**Se ppm**
	100	**1131**	**2.0**	**2.16**	**1117**	**0.10**	**1.42**	**4.2**	**0.50**
	Sn ppm	**Sr ppm**	**Te ppm**	**U ppm**	**V ppm**	**W ppm**	**Y ppm**	Zn ppm	**Zr ppm**
	0.7	**30.5**	**0.34**	**0.8 ppm**	**60**	**0.30**	**16.4**	129.9	**10.87**
Sample Tags: 14E41212, 14E41222, 14E41227, 14E41236, 14E41265 were all anomalous with Ag = 0.5 ppm									

In addition to the above soil anomalies **14E41266 returned Cu 179.0 ppm; and sample 14E41266 returned Pb 246.9 ppm.** Both of these are at or near the top of the range. Soil geochemistry results for the SILVERGAL1 (especially **14E41213, 14E41213, 4E41239)** confirmed the presence of multiple Au (mult-element), Ag (multi-element), copper, lead, and zinc soil anomalies which require high priority follow-up work such as prospecting, additional soil geochemistry, geological mapping, ground geophysics, trenching and drilling.

SILVER MINNOW1 GRID: The following two tables, **TABLE 12 and TABLE 13,** from ARIS 33190, show a few selected gold and silver anomalies for selected elements.

TABLE 12: SILVER MINNOW1 GRID - Selected Gold in Soil Anomalies For Selected Elements: (from ARIS 33190)

SELECTED SOILS only	**SILVER MINNOW1 GRID – GOLD LEADING with Au 6.8 ppb at 90 %ile: Anomalous values shown (in bold black text) for selected elements.**								
Sample Tag 14E41285	**Au_ppb**	Ag ppm	**As ppm**	**Ce ppm**	**Co ppm**	**Cr ppm**	**Cu ppm**	**Fe %**	**Ga ppm**
	26	0.3	**18.9**	**33.10**	**27.8**	**67.5**	**149.4**	**5.55**	**7.10**
	K %	**La ppm**	**Mg %**	**Mn ppm**	**Mo ppm**	**Ni ppm**	**Sb ppm**	**Sc ppm**	**Se ppm**
	0.15	**16**	**0.81**	**1019**	**1.31**	**74.3**	**0.92**	**7.0**	**0.40**
	Te ppm	**Th ppm**	**V ppm**	**Y ppm**					
	0.12	**5.2**	**82**	**9.1**					
Sample Tag 14E41306: Au 12 ppb									

TABLE 13: SILVER MINNOW1 GRID - Selected Silver in Soil Anomalies For Selected Elements: (from ARIS 33190)

SELECTED SOILS only	**SILVER MINNOW1 GRID – SILVER LEADING with Ag 0.5ppm at 90 %ile: Anomalous values shown (in bold black text) for selected elements.**								
The following Sample Tags were anomalous for silver: 14E41286 returned Ag 0.7 ppm; 14E41327 returned 0.7 ppm; 14E41329 returned Ag 0.7 ppm; 14E41311 returned Ag 0.5 ppm;									
Sample Tag 14E41305	Au ppb	**Ag ppm**	**Al %**	**Ba ppm**	**Be ppm**	**Bi**	**Cu ppm**	**Ga ppm**	**Hg ppm**
	2.0	**0.5**	**2.77**	**218**	**0.6**	**0.34**	**63**	**9.5**	**45**
	Li ppm	**Mn ppm**	**Nb ppm**	**Rb ppm**	**S %**	**Se ppm**	**Sn ppm**	**Tl ppm**	**U ppm**
	17.9	**2153**	**1.54**	**14.9**	**0.10**	**0.4**	**0.7**	**0.1**	**0.9**
	W ppm	**Zn ppm**							
	0.2	**138.6**							
Sample Tag 14E41322	Au ppb	**Ag ppm**	**Al %**	Be ppm	**Bi ppm**	Cd ppm	Ce ppm	**Hg ppm**	**La ppm**
	2.0	**0.5**	**2.86**	0.6	**0.28**	0.32	30.5	**50**	**29.9**
	Nb ppm	**S %**	**Se ppm**	**Sn ppm**	**Sr ppm**	**Te ppm**	**Ti %**	**U ppm**	**Zn ppm**
	1.68	**0.1**	**0.4**	**0.7**	**26.5**	**0.12**	**0.091**	**1**	**188**
Copper: Sample Tag 14E41308 returned Cu 59.7;14E41309 returned Cu 84.4 ppm; and 14E41325 returned Cu 75.3 ppm with the 90 %ile being Cu 52.32 ppm. **Lead: : Sample Tag 14E41297 returned Pb 28; 14E41330 returned Pb 26 ppm; 14E41325 returned Pb 27.3 ppm; and 14E41299 returned Pb 25.5 ppm with the 90 %ile being Pb 24.72 ppm.** **Zinc: 14E41283 returned Zn 195.2 ppm with the 90 %ile being Zn 137.62 ppm**									

Soil geochemistry results for the SILVER MINNOW1 GRID confirm the presence of multiple Au (mult-element), Ag (multi-element), copper, lead and zinc soil anomalies which require high priority follow-up work such as prospecting, additional soil geochemistry, geological mapping, ground geophysics, trenching and drilling.

PROSPECTING SOIL SAMPLES:

At BARRIERE RIDGE, soil samples were collected when float rocks in till were observed (or suspected) to have mineralization. The each soil sample was collected from the same soil horizon as the float rock. Prospecting soil samples were not included in the soil grid sampling data because they were biased by the anomalous float rock. For example, ARIS 33190 soil sample **Tag 10E41191 SM11FRAT returned Au 18.1 ppb, Ag 9.74 ppm, Pb 1835 ppm, Zn 2730 ppm** which far exceeds any Zn Pb Zn soil values in any of the soil grids in this report.

TABLE 14: PROSPECTING (only) SOIL SAMPLES vicinity of SILVER MINNOW1 GRID – Selected Soil Anomalies For Selected Elements:

SELECTED SOILS only	**PROSPECTING (only) SOIL SAMPLES Anomalous values shown (in bold black text) for selected elements.**								
Sample Tag 10E41191 SM11FRAT	**Au ppb**	**Ag ppm**	**As ppm**	**Cd ppm**	**Be ppm**	**Cu ppm**	**Pb ppm**	**Sb ppm**	**Se ppm**
	18.1	**9.74**	**8.5**	**4.5**	**0.6**	**53.4**	**1835**	**51.6**	**0.6**
	Te ppm	**W ppm**	**Zn ppm**						
	0.24	**0.76**	**2730**						
Sample Tag 10E41193 SM11FR10T	Au ppb	Ag ppm	**As ppm**	**Cd ppm**	**Bi ppm**	Cd ppm	Co ppm	**Cu ppm**	**Nb ppm**
	6.1	0.3	**18**	**1.53**	**0.28**	0.32	33.9	**174**	**1.48**
	Pb ppm	**Se ppm**	**Sr ppm**	**Ta ppm**	**Tl ppm**	**Zn ppm**			
	30.2	**0.4**	**28.9**	**0.04**	**0.08**	**427**			
Copper: Sample Tag 14E41194 SM11T8 returned Cu 124 ppm, Fe 5.99 %, Pb 30.3 ppm. **Lead: Sample Tag 14E41190 SM11FR5T returned** Cu 37.1 ppm**, Pb 139 ppm.**									

7. Stream Geochemical Surveys.

A total of 2 stream sediment and 2 moss mat samples were previously collected in ARIS 33190. The target area was south (down ice) from the SILVER MINNOW adit and DL 4023 WHITE ROCK MC. All 4 samples had anomalous values therefore all four are shown in the following tables, **TABLE 14 Moss Mats** and **Table 15 Stream Sediments**, as follows:

TABLE 15: Selected Moss Mat Anomalies: (for selected elements).

Moss Mats only	Anomalous values shown in red (90 %ile)				
Sample Tag	Ag_ppm	Ca_%	Cu_ppm	Pb_ppm	Sb_ppm
10E41186 SM11MM1	**0.35**	**16.8**	14	6	0.18
10E41187 SM11MM2	0.21	**18.45**	**29**	**16.8**	**0.54**

TABLE 16: Selected Stream Sediment Anomalies: (for selected elements).

Stream Sediments only	Anomalous values shown in red (90 %ile)				
Sample Tag	Ag_ppm	Ca_%	Cu_ppm	Pb_ppm	Sb_ppm
10E41188 SM11SS1	**0.75**	**22.5**	**26.1**	5.8	0.17
10E41189 SM11SS2	0.12	**20.2**	21.8	**24.8**	**0.53**

Based on these results, the area 400 metres south of SILVER MINNOW is prospective for Ag and Cu and is associated with limestone. These stream anomalies require followed up.

8. Photosat Image (0.5m pixel).

A total of 23,530 hectares of 2012 PhotoSat 0.5metre Pixel imagery were acquired and reported in ARIS 33744. This will be used extensively for mineral exploration and development programs; and reporting.

II – TECHNICAL DATA AND INTERPRETATION

2018 EXPLORATION PROGRAM

The property geology described here is based largely on Schiarizza and Preto Dec 1987, Dixon and Warren et al 1997; and Logan and Mann April 2000. For detailed information, consult the above references and additional references given in LITERATURE CITED.

A. PROPERTY GEOLOGY:

The property geology and rock type descriptions are based entirely on Schiarizza and Preto Dec 1987; Dixon and Warren et al 1997; Logan and Mann April 2000; and GeoFile 2005-4 downloaded from the Ministry of Energy Mines website. For detailed information, consult the above references and additional references given in LITERATURE CITED. See ILLUSTRATION and TABLE below, and the geology map provided in the APPENDIX.

Regionally, BARRIERE RIDGE is located in the Kootenay Terrane at, or near the main contact between the mid-CRETACEOUS Baldy Batholith Unit **[Kg, also KBBgd, KBBmg]** the DEVONO-MISSISSIPPIAN Eagle Bay Assemblage Unit **[EB**], and the late DEVONIAN Paragneiss Unit **[Dgnp]**. On the west side of the BARRIERE RIDGE claims along the western boundary of Tenures 844644/844645, the claims are at the contact between the Fennell Formation **[lF]** (Slide Mountain Terrane) and the Eagle Bay Assemblege (Kootenay Terrane).

The Baldy Batholith is generally considered MID-CRETACEOUS at 80 to 100Ma. The **Kg** is a massive granite and granodiorite intrusive. The Eagle Bay Assemblege **[EB]** is a series of low-grade meta-sedimentary and meta-volcanic rocks. The Fennell Formation [**uF** – upper structural division; **lF** – lower structural division is comprised of oceanic rocks which were tectonically emplaced over Mississippian rocks of the Eagle Bay Assemblege in early Mesozoic time. The **lF** and **EB** successions are cut by mid-Cretaceous granitic rocks, and by Early Tertiary quartz feldspar porhhyry, basalt and lamprophyre dykes. The Late Devonian Paragneiss Unit **[Dgnp],** is absent from the BARRIERE RIDGE claims.

The following is a brief description of the various rock types:

1. Kootenay Terrane: Lower Cambrian (and older?) to Mississipian

(a) EBF: *Devonian and/or Mississipian – light to medium grey, rusty weathering felspathic phyllite, schist and fragmental schist derived from intermediate tuff and volcanic breccia; minor amounts of dark grey phyllite and siltstone.*

(b) EBA: *Devonian – light silvery grey to medium greenish grey sericite-quartz phyllite and sericite-chlorite-quartz phyllite derived from felsic to intermediate volcanic and volcaniclastic rocks, including pyritic, felspathic and coarsely fragmental varieties; lesser amounts of dark grey phyllite and siltstone, green chloiritc phyllite, sericiteic quartzite and pyritic chert (exhlite?).*

(c) EBG: *Lower Cambrian (may include younger and or older rocks) Medium to dark green calcareious chlorite schist, fragmental schist and greenstone derived largely from mafic to intermediate volcanic and volcaniclastic rocks; lesser amounts of limeston and dolostone; minor amouns of quartzite grit and light to dark grey phyllite.*

- EBGp: *dark grey phyllite, calcareious phyllite and limestone; minor amounts of rusty weathering carbonate-sericite-quartz phyllite (metatuff?).*
- EBGq: *light to medium grey quartzite.*
- EBGt: *Tshinakin limestone member – massive light grey finely crystalline limestone dolostone.*

(d) EBP: *Mississippian – dark grey phylilite and slate with interbeedded siltstone, sandstone and grit; lesser amounts of conglomerate, limestone, dolostone, chlorite-sericite quartz schist, quartzite and metatuff.*

- EBPv: *metavolcanic breccia and tuff.*

(e) EBQ: *Lower Cambrian ? and Hadrynian ? – light to dark grey quartzite, micaceious quartzite, grit chlorite-muscovite-quartz schist and phyllite; lesser amounts of calcareous phyllite, calc-silicate schist, carbonate and green chlorite schist; eastern exposures include staurolite-garnet-mica schist and amphibolite.*
Note: Described by Logan and Mann (April 2000) as **"HCEBQ";** and **"HCEBQgn"** *includes orthogneiss of unit* **Dgn***, as well as sericite-quartz phyllite derived from quartz porphyry dikes and sills*.

2. Slide Mountain Terrane: Devonian to Permain: Fennell Formation – Lower Structural Division

(a) lFu: *Undivided; mainly lFc, lFg and lFb, but may include any or all of the Fennell Formation rock types.*

- lFc: *grey and green bedded chert, certy argillite, slate and phyllite.*
- lFg: *gabbro, diorite, diabase.*
- lFb: *grey and green pillowed and massive metabasalt; minor amounts of basaltic breccia and tuff.*

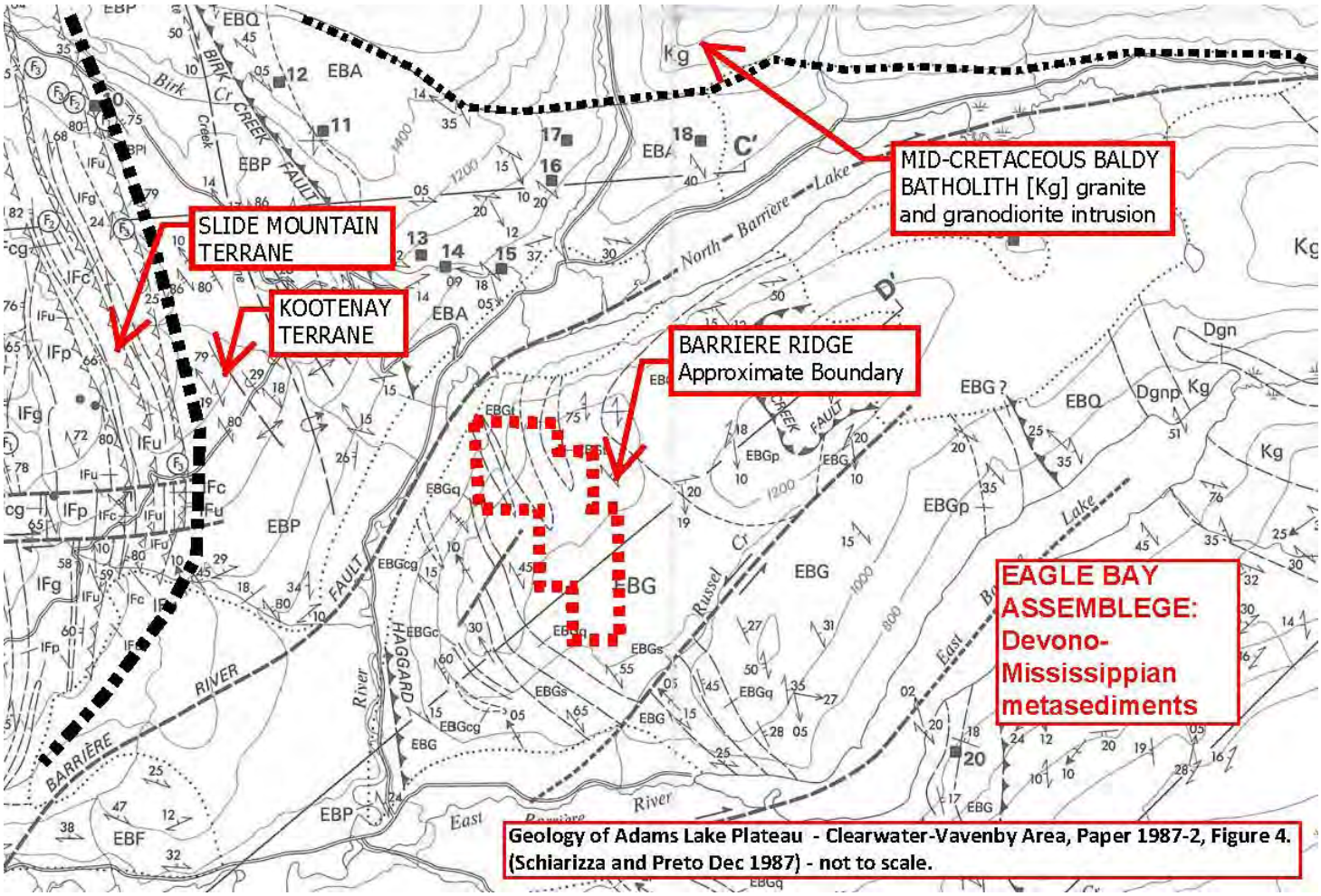
3. Cretaceous

(a) **Kg:** *granite and granodiorite***; Kgp** *includes abundant pegmatite;* **KBBmg** – *medium to course grained, pink potassium feldspar megacrystic biotite monzogranite, hornblende-biotite monzodiorite and coarse pegmatite segregations*; **KBBgd** – *coarse potassium feldspar megacrystic hornblende-biotite granite to granodiorite, coarse equigranular biotite monzogranite (KBBg) and medium-grained aplite dikes.*

4. Geologic Faults: A number of important geologic faults occur within the BARRIERE RIDGE claims (Schiarizza and Preto Dec 1987 Figure 4 map). They are as follows:

- The Barriere River Fault which follows the Barriere River and North Barriere Lake in a southwest to northeast direction.
- The Birk Creek Fault which follows Birk Creek in a northwest to south east direction. This fault forms a junction with the Barriere River Fault at the confluence of Birk Creek. The fault forms a NE facing "U-shape" on the height of land between North Barriere Lake and East Barriere Lake; and continues in a southerly direction south of East Barriere Lake.
- The Haggard Creek Fault which follows Haggard Creek in a southeast to northwest direction; and follows the Barriere River upstream from the confluence with the East Barriere River.
- The Russell Creek Fault runs in a southwest to northeasterly direction up Russell Creek.
- The East Barriere Lake Fault runs up the center of East Barriere Lake in a roughly southwest to northeasterly direction.

ILLUSTRATION # 17: Map excerpt from Figure 4 of Schiarizza and Preto Dec 1987 showing the geology and faults in the vicinity of North Barriere Lake, East Barriere Lake, Adams Lake (not to scale). The North on this map is up. See cross section in the next Illustration.



BRITISH COLUMBIA GEOLOGICAL SURVEY DATA (BCGS):

The BCGS has completed a number of regional geochemistry surveys including till, stream water, steam/moss sediment, and geological mapping works as follows:

(a) *Till Geochemistry of the Adams Lake Plateau - North Barriere Lake Area (82M/4 & 5) – Open File 1997-9.* (Bobrowsky et. al. 1997).

(b) *Regional Stream Water Geochemistry of the Adams Lake – North Barriere Lake Area, British Columbia (NTS 82M/4 and 82M/5) – Open File 1998-9* (Lett, Sibbick, Runnells January 1999)

(c) *Stream Geochemical Exploration for Pluton-Related Quartz Vein Gold Deposits in Southern British Columbia - Open File 2000-23.* (Lett, Jackaman, Englund April 2000).

(d) *Geology & Mineralization around Baldy Batholith, Southcentral BC. Map Scale 1:50 000. NTS 82M/3, 4, 5 &6.* Open File 2000-7. (Logan and Mann April 2000).

(e) *Geology of the Adams Plateau-Clearwater-Vavenby Area; B.C. Ministry of Energy, Mines and Petroleum Resources, Paper 1987-2.* Schiarizza, P. and Preto, V. (1987).

(f) *British Columbia Regional Geochemical Survey, Seymour Arm - NTS82M - RGS 33* (P.F. Maytysek et al 1991)

Anomalies and geological mapping summarized in these 6 OPEN FILE/PAPER references, when considered together, formed part of the basis for this 2018 exploration program. On a number of occasions, the author spoke to various authors named above to obtain (free) advise concerning various aspects of their work (i.e. Jim Logan, Ray Letts, and Paul Schiarizza).

ILLUSTRATION # 18: Geological Cross Section D, an excerpt from Figure 4): An excerpt from *Geology of the Adams Plateau-Clearwater-Vavenby Area; B.C. Ministry of Energy, Mines and Petroleum Resources, Paper 1987-2.* Schiarizza, P. and Preto, V. (1987). View is to the north and west is at the bottom of the page.

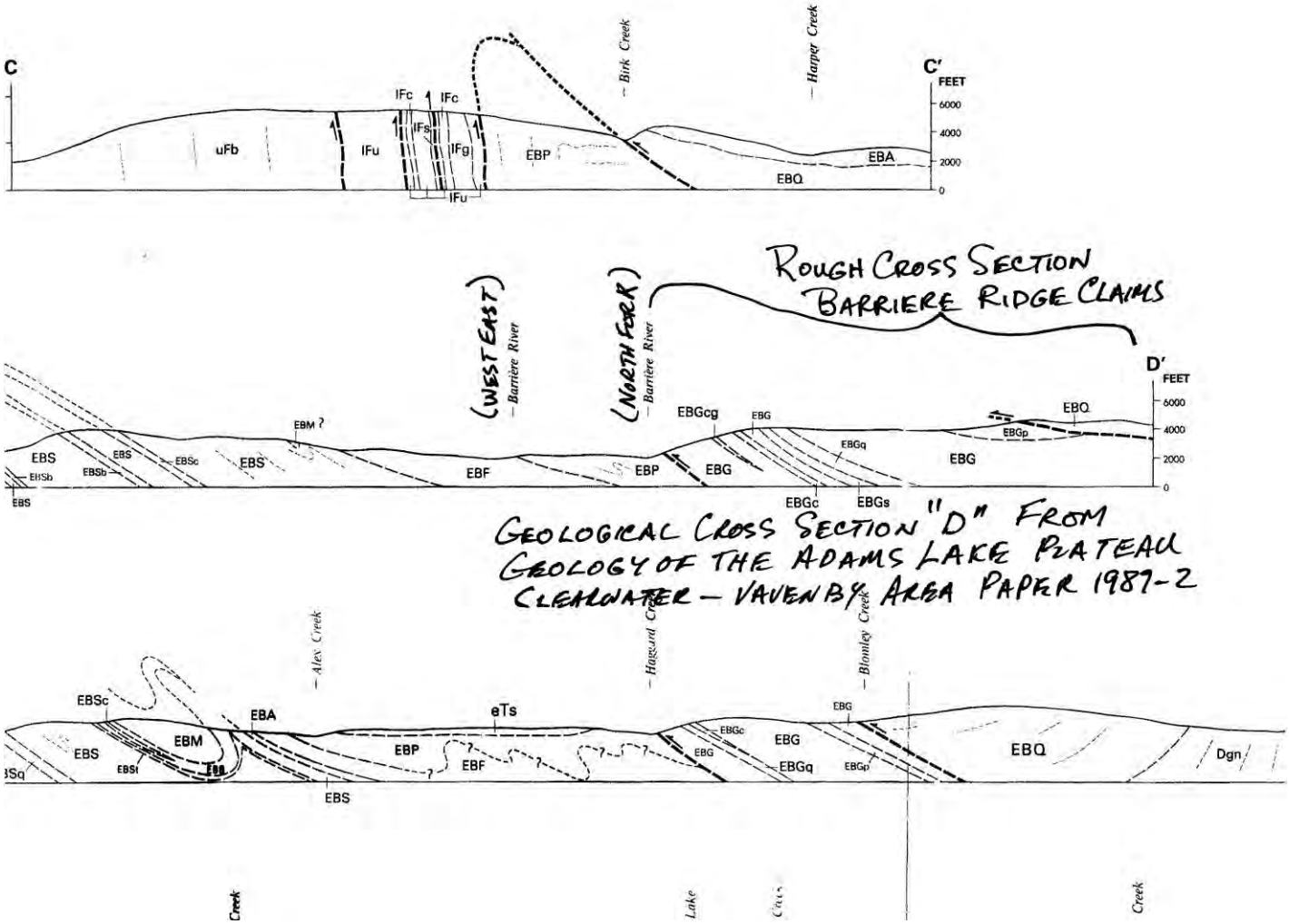


ILLUSTRATION # 19: Map excerpt directly from OPEN FILE 2000-7 Logan and Mann April 2000 showing the geology and faults in the vicinity of North Barriere Lake, East Barriere Lake, Adams Lake (estimated scale <1:100,000). North is up.

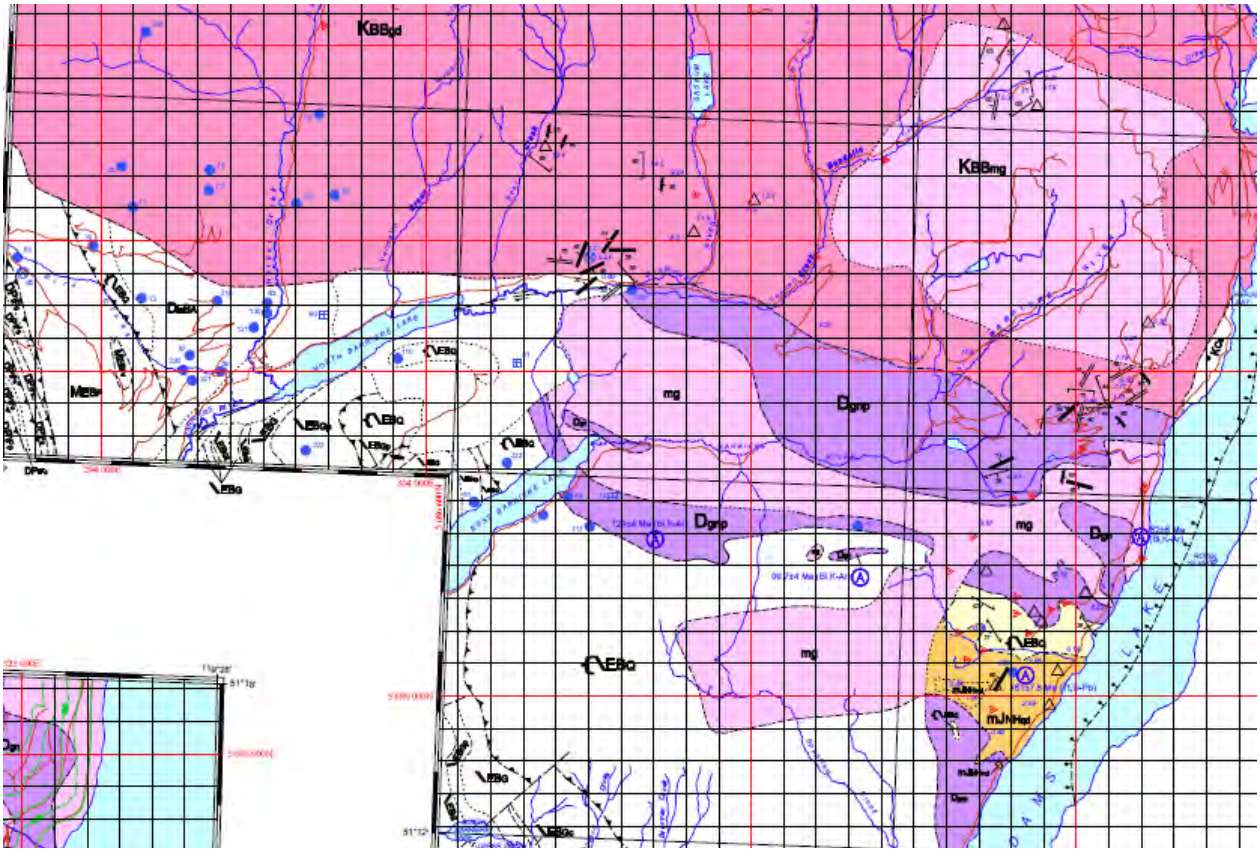


TABLE 17: GEOLOGY OF THE BARRIERE RIDGE CLAIMS: This table gives a detailed summary of each claim based on GeoFile 2005-4 and Open File 2007-7. See also Schiarizza and Preto 1987 and geology maps in the APPENDICIES

Tenure	Geology
744542	EBG; EBGt with fingers forming in northwest to southeast direction. Hosts WHITE ROCK MINFILE, SILVERMINNOW MINFILE, SILVER TRAIL Showing, SILVERBOY Showing, and Breccia Area.
744562	EBG; with EBGq in the south 1/2. Hosts the SILVERGAL showing.

B. 2018 EXPLORATION METHODS, WORKS AND OBJECTIVES:

Sampling methods, works and objectives are discussed in the following 6 sections:

1. **Sampling Methods and Analysis Procedures**
2. **Stream Sediment Surveys**
3. **Soil Sampling**
4. **Rock Samples**
5. **Assay and Analytical Procedures.**

1. Sampling Methods and Analysis Procedures:

Sample locations were marked with winter weight survey ribbon, and/or an aluminum tag or white Tyvek tag. In most circumstances the interval between sample locations was marked with “candy stripe orange & black” survey ribbon, and each sample site was marked with florescent orange or florescent pink ribbon.

A Garmin 60CSx was used to collect Global Position System (GPS) waypoints. GPS data was collected using the Universal Transverse Mercator Grid (UTM) in NAD 83 (or WGS84) and usually 4 or more satellites were used for waypoints unless narrow gullies, ravines, and heavy timber made waypoint collection problematic. Where the sample location was problematic, in terms of satellite reception (i.e. deep gully, forest cover), and only 2 satellites were obtained the UTM coordinates were interpolated from 3 adjacent waypoints by an iterative process, or by hip chain and compass bearing. Adjusted waypoints were confirmed by referencing the sample location on an orthographic map, at a scale of 1:5000, and/or re-confirming the location with prospecting field notes.
Sample waypoints were named according to the following naming convention:

- The Barriere Ridge claims had a prefix of "BR18__"; and the second 2 digits give the year.
- The SILVER MINNOW area had a prefix "SM__"
- Stream sediment sample waypoints – "_SS_" (i.e. BR18SS__).
- Moss Mat sediment sample waypoints – "_MM_" (i.e. BR18MM__).
- Soil or Till sample waypoints – "_T_" or "__T" (i.e. SGT__ or (i.e. "BR17__T".
- Float Rock sample waypoints – "_FT_ " (i.e. BR17FT__) or (i.e. BR17FL__).
- Rock or Grab Rock sample waypoints – "_R_" (i.e. BR18_R__) and are associated with talus or outcrops.
- Certain Grab sample waypoints – "_GR_" (i.e. BR18_GR__")
- Channel sample waypoints– "_CH_ " (i.e. BR18CH__)
- Quartz Veins waypoints – "_Q_" or "_QZ_" or "_QTZ_" (i.e. BR_QZ__) or (i.e. SG_QZ__")
- Limestone waypoints "_LIM_" or "_QLIM_" for quartz limestone.

Important samples sites were photographed with a digital camera for future reference. Rocks, outcrops and sample sites were photographed in the field, and then at home a close up of each sample rock (macro zoom) was taken before being assayed. Before sealing the sample bag for assay, a voucher specimen piece was taken from the sample bag, and marked and securely stored for future reference.

2. Stream Sediment Surveys:

Stream sediment surveys were not done for this report.

3. Soil Sampling:

Surface soils (exposed in road cuts or skidder trails) containing color anomalies were observed in some locations. On a prospective basis, random soil samples were collected from the apparently altered soil. A shallow pit or hand trench (i.e. 0.5m x 0.5m x 0.4m) was dug with a grub hoe, geotul, or shovel. The soil sample was collected with a clean plastic hand trowel and put in a kraft soil bag. If samples were very wet they were double bagged to ensure the samples was secure. The location was GPS'd and photographed; and samples were then air dried in Kamloops or Sooke prior to assay at ALS Minerals in Kamloops or Vancouver. To determine if soil sample assay results were anomalous they were compared to statistical (90 %ile) references given in Open File 1997-9 (Bobrowsky, et al. 1999).

A hand held compass, hip chain, and a GPS unit were used to survey soil grids. Sample stations were marked with survey ribbon and/or Tyvek tags. Where possible, soil samples were taken with a hand powered soil auger except on rocky sites where a geotul or rock hammer was used to dig a small sampling pit.

In previously reported soil grids at BARRIERE RIDGE (i.e. SILVERGAL SOIL GRID and SILVER MINNOW SOIL GRID) stations were established using a "preset" UTM grid using a Garmin 60scx hand held GPS (25 metre interval). The strip lines were following a UTM easterly strip line. Periodically, a hip chain was used to measure the distance between samples to make sure the GPS working properly.

Where possible, soil samples were collected from the top of the B horizon (usually Bf, Bm, Bmf, or Bh) based on the reference *The Canadian System of Soil Classification* (1987) as well as the *Taxonomic Classification of Humus Forms in*

Ecosystems of British Columbia (Klinka et al 1981).

4. Rock Samples:

Rock samples were collected using a geotul, rock hammer, sledge hammer or grub hoe. In certain cases small prospecting hand trenches (i.e. 0.5m x 0.5m x0.4m) were made to collect the sample. All samples were broken to a suitable size and collected in plastic samples bags secured with survey ribbon. The plastic bags were permanently marked for identification purposes and survey ribbon (sample no.) was placed inside the bag just in case the markings on the bag were rubbed off.

The location was GPS'd. The collection site and rocks were photographed with a digital camera, and again (macro zoom) prior to being sent to the assay lab for processing. Where necessary, field notes described the location of the samples and rough sketch maps were made of rock faces showing the detailed sample location. Care was taken to note if samples were a random sample, selective sample, channel sample, grab sample, glacial float sample, stream float sample, or from outcrop. Some rocks were collected, observed and not assayed. These rocks were discarded in a sensitive manner.

6. Assay and Analytical Procedures:

Assay and analytical work are done by ALS Minerals Canada following international certification practices. In the interest of brevity, refer to their website (http://www.alsglobal.com/en/Our-Services/Minerals) for more specific assay criterion; and also the information provided in the APPENDIX.

For this report, samples were submitted to the Kamloops – ALS Minerals preparatory lab and shipped to North Vancouver for assay, or sent directly to the North Vancouver lab.

C. 2018 EXPLORATION AND ANALYTICAL RESULTS :

In general terms, exploration works involved as follows:

- Prospecting, sampling (rock, soil, stream), outcrop sampling, and geochemical assays.
- Physical work brushing the access and safe evacuation trail.
- Prospecting new roads and outcrops exposed by road construction and logging.
- The review of the Fugro airborne geophysical work and interpretations report including data and maps.
- The review and upload spatial files of the digital aerial photography by Photosat in to UDIG software.
- Field checking, and planning preparatory surveys, and geochemical survey work prior to 2019.
- Determine the main owners (traditional First Nations) of the lands within the BARRIERE RIDGE claims.
- Communication, information share, and meet with First Nations.
- Database management and update. Review and debug the BARRIRERE RIDGE database to search for errors or ommissions.
- Research and review various mineralization or deposit models based on known mineralization. For example: Polymetallic Vein and Carbonate-hosted Replacement Deposit Models.
- Literature searches and research (BCGS, GSC, Internet searches) concerning historic assessment work from government data sets and published literature related to the Eagle Bay Assemblege and Ag Pb Zn deposits.
- Review of historic literature and research concerning the geology and geochemistry of the BARRIERE RIDE claims.
- Review literature related to the Ag Pb Zn limestone/dolostone deposits.

Exploration work was completed by David J. Piggin and Judy Burr for Mantra Resources Inc from December 15, 2017 to December 10, 2018. The total applied work was $ 12,644.55. A detailed cost summary is at the end of this report just before the APPENDICIES. Exploration work recorded under EVENTS 5722846 as shown in the following table.

TABLE 18: Cost Summary by EVENT Number: A cost summary is presented at the end of this report before the APPENDIX.

Event No.	Date	Gross Area (hectares)	Total Value of Work($)	PAC Account ($)	Total Applied Work Value($)
5722846	December 13, 2018	485.1597	$ 12,644.55	$ NIL	$ 12,644.55
		485.1597 hectares	$ 12,644.55	$ NIL	$ 12,644.55

In general terms, all exploration works (where applicable) are given in the APPENDICIES for example: overview maps, the general location of prospecting work, detailed maps showing sampling locations and anomalous results, as well as assay results. The following is a brief summary of the works completed.

ILLUSTRATION # 20: David Piggin; and a view of the large limestone/dolostone outcrops and bluffs in the vicinity of the SILVER MINNOW MINFILE, SILVERBOY Showing, SILVER TRAIL Showing, and WHITE ROCK MINFILE (IMG_2430 text.pdf).

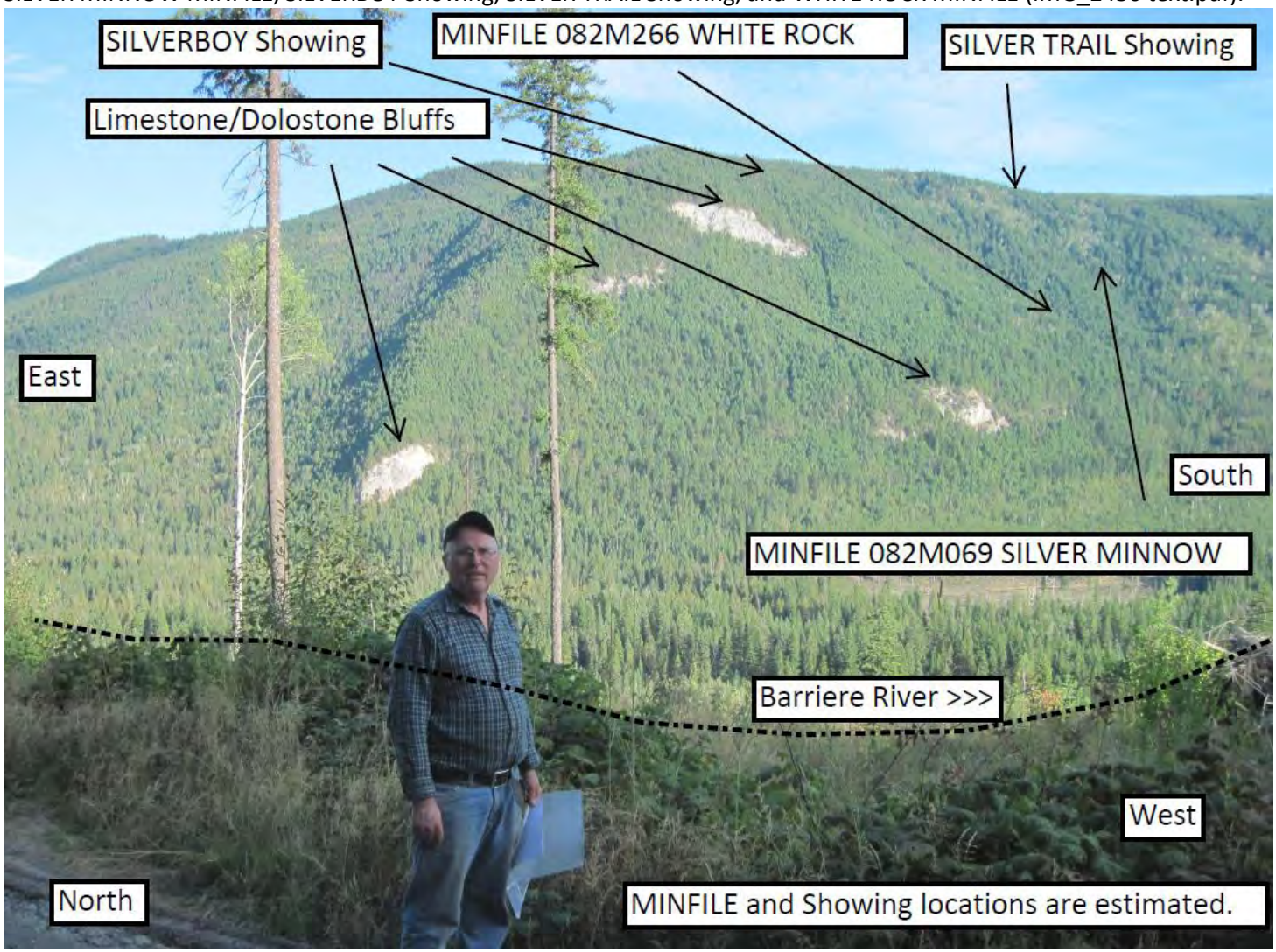
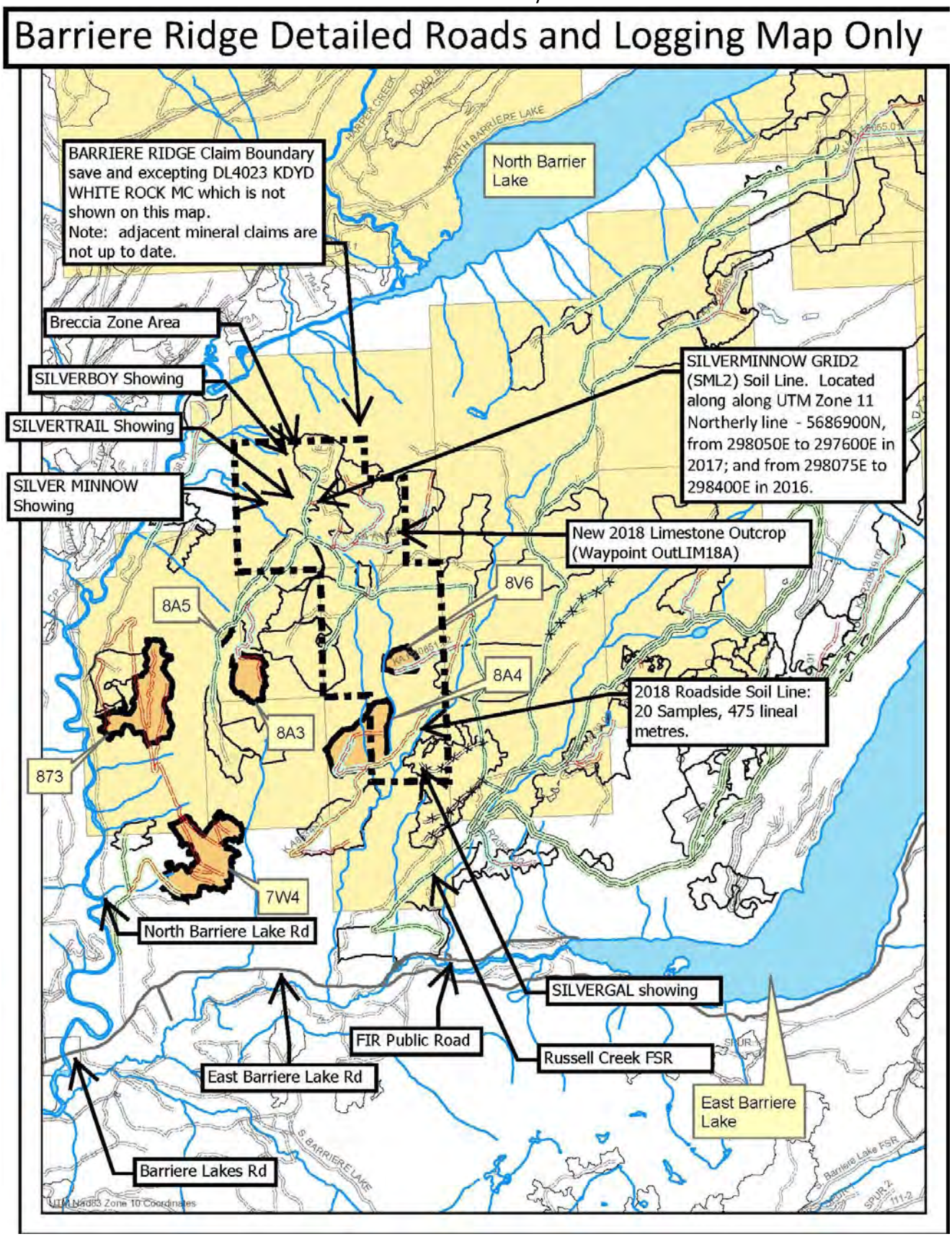


ILLUSTRATION # 21: Road and logging map based on a BC Timber Sales map dated April 22, 2016 (not to scale, north is at top of page). The map has been edited for display purposes to show the location of the 2018 exploration work; and claims boundary after January 3, 2019. The light brown areas are old mineral claim boundaries. The "dash-dot" black line is the current BARRIERE RIDGE mineral claim boundary.



Details of 2018 Exploration and Results:

Discussion of the 2018 exploration work is provided here. A total of 30 samples were collected, 10 rock samples and 20 soil samples, of which 6 rock samples were assayed. The remaining samples (4 rock samples and 20 soil samples) will be assayed in 2019 and included in a future ARIS report. A complete list of the sample tag numbers, GPS coordinates, rock descriptions, detailed location maps (1:10,000 and 1:5000), results, anomalous results, and assay certificates are given in this report and in the APPENDICIES. A list of selected anomalous results for certain selected elements, including photographs, is given in the sections below as follows:

1. Rock Samples:
   SILVER BOY Showing including the Breccia Area, and the SILVER TRAIL Showing.
2. Soil Samples: ROAD SOIL LINE18 in Tenure 744562.
3. Stream Sediment Samples
4. Fugro Airborne Geophysics/Intrepretation Report (Anomalous Rock, Soil, and Stream Samples).
5. First Nations.
6. Physical Work – Trail Brushing, Hand Trenches.
7. Soil Slides Below Access Trail.

1. ROCK SAMPLES:
SILVERBOY SHOWING - BRECCIA AREA; AND SILVER TRAIL SHOWING.

A total of 10 rock samples were collected in the vicinity of the SILVER MINNOW MINFILE, SILVER TRAIL Showing, and SILVERGAL Showing. A total of 6 samples were assayed at ALS Minerals in North Vancouver by the ME-MS61, Ag-OG62, Au-ICP21, Pb-OG62, Zn-OG62 methods (ALS Minerals 2017 Catalogue). The SILVERBOY Showing was also examined but no sample was collected. The following is a list of the Sample Tag or Waypoint Name showing the assay certificate and anomalous results. A complete list including the waypoints, GPS coordinates, assay certificates, elevation, comments, general and anomalous results are given in the APPENDIX. In terms of precious and base metal results samples (see Table on next page):

SILVERBOY AND BRECCIA AREA: Anomalous for Ag Bi Pb Sb Zn with up to Ca 24.4 percent and Mg 10.2 percent.
140E41507_BR18R10A: Anomalous Results: Ag 28.8 ppm; Bi 5.71 ppm; Ca 5.63 percent; Mg 1.54 percent; Pb 4020 ppm
10E41505_BR18R99A: Ag 13.35 ppm; Bi 1.79 ppm; Ca 24.4 percent; Cu 348 ppm; Mg 9.43 percent; Pb 686 ppm; Sb 125 ppm; Zn 573 ppm
140E41508_BR18R9: Ag 11.45 ppm; Bi 4.94 ppm; Ca 22.5 percent; Cd 125.5 ppm; Mg 10.2 percent; Pb 6280 ppm; Sb 42.8 ppm; Zn 2.03 percent
140E41510_BR18R9B: Ag 3.76 ppm; Bi 3.62 ppm; Ca 18.3 percent; Mg 8.06 percent; Pb 1700 ppm; Zn 904 ppm
140E41509_BR18R9A: Ca 20.1 percent; Mg 8.85 percent; Mo 2.34 ppm; Pb 170.5 ppm; Zn 661 ppm

SILVER TRAIL Showing: Pre-2018 exploration indicates SILVER TRAIL is anomalous for Ag Pb Zn (Cu Sb).
140E41506_BR18R7Q: Ca 15.45 percent; Mg 7.87 percent

Since most the samples were hosted in limestone/dolostone **[EBGt]** with quartz veins, veinlets and /or stock work many of the samples were anomalous for Ca and Mg.

TABLE 19: Rock Sample Data Showing Location, Assay Certificate, Comments, Results and Anomalous Results. A total of 10 rock samples were collected and 6 were assayed. Anomalous results are shown in bold text.

Sample Tag	Waypoint	NAD 83 UTM Zone	Easterly	Northerly	Elevation (m)	Comment
140E41507_BR18R10A Assay Certificate VA18271408	BR18R10AB	11	297914.499	5687404.485	1207.052	silver galena in quartz vein with limestone host within old trench near SILVERBOY Showing
	Results: Au 0.018 ppm; Ag 28.8 ppm; Bi 5.71 ppm; Ca 5.63 percent; Cd 0.4 ppm; Cu 3.8 ppm; Mg 1.54 percent; Mo 1.7 ppm; Pb 4020 ppm; Sb 6.35 ppm; Zn 31 ppm					
	Anomalous Results: Ag 28.8 ppm; Bi 5.71 ppm; Ca 5.63 percent; Mg 1.54 percent; Pb 4020 ppm					
10E41505_BR18R99A Assay Certificate VA18271408	BR18R99	11	297973.146	5687517.864	1232.767	Breccia Area galena malachite quartz veinlets limestone host
	Results: Au 0.013 ppm; Ag 13.35 ppm; Bi 1.79 ppm; Ca 24.4 percent; Cd 3.72 ppm; Cu 348 ppm; Mg 9.43 percent; Mo 0.4 ppm; Pb 686 ppm; Sb 125 ppm; Zn 573 ppm					
	Anomalous Results: Ag 13.35 ppm; Bi 1.79 ppm; Ca 24.4 percent; Cu 348 ppm; Mg 9.43 percent; Pb 686 ppm; Sb 125 ppm; Zn 573 ppm					
140E41508_BR18R9 Assay Certificate VA18271408	BR18R9	11	297914.382	5687393.382	1220.510	quartz veins in limestone host within cutslope of old trench near SILVERBOY Showing
	Results: Au 0.012 ppm; Ag 11.45 ppm; Bi 4.94 ppm; Ca 22.5 percent; Cd 125.5 ppm; Cu 90.5 ppm; Mg 10.2 percent; Mo 1.33 ppm; Pb 6280 ppm; Sb 42.8 ppm; Zn 2.03 percent					
	Anomalous Results: Ag 11.45 ppm; Bi 4.94 ppm; Ca 22.5 percent; Cd 125.5 ppm; Mg 10.2 percent; Pb 6280 ppm; Sb 42.8 ppm; Zn 2.03 percent					
140E41510_BR18R9B Assay Certificate VA18271408	BR18R9	11	297914.382	5687393.382	1220.510	quartz in limestone host within cutslope of old trench near SILVERBOY Showing
	Results: Au 0.001 ppm; Ag 3.76 ppm; Bi 3.62 ppm; Ca 18.3 percent; Cd 3.91 ppm; Cu 2.5 ppm; Mg 8.06 percent; Mo 1.8 ppm; Pb 1700 ppm; Sb 3.68 ppm; Zn 904 ppm					
	Anomalous Results: Ag 3.76 ppm; Bi 3.62 ppm; Ca 18.3 percent; Mg 8.06 percent; Pb 1700 ppm; Zn 904 ppm					
140E41509_BR18R9A Assay Certificate VA18271408	BR18R9	11	297914.382	5687393.382	1220.510	quartz in limestone host within cutslope of old trench near SILVERBOY Showing
	Results: Au <0.001 ppm; Ag 0.43 ppm; Bi 0.85 ppm; Ca 20.1 percent; Cd 3.73 ppm; Cu 5.2 ppm; Mg 8.85 percent; Mo 2.34 ppm; Pb 170.5ppm; Sb 3.32 ppm; Zn 661 ppm					
	Anomalous Results: Ca 20.1 percent; Mg 8.85 percent; Mo 2.34 ppm; Pb 170.5 ppm; Zn 661 ppm					

140E41506_BR18R7Q Assay Certificate VA18271408	BR18R7Q	11	298003.755	5686974.710	1250.551	in road cutslope silvery mica quartz vein in host limestone and 15m south of SILVER TRAIL showing
	Results: Au 0.001 ppm; Ag 0.11 ppm; Bi 0.09 ppm; Ca 15.45 percent; Cd 0.3 ppm; Cu 5.2 ppm; Mg 7.87 percent; Mo 0.91 ppm; Pb 16.1 ppm; Sb 3.57 ppm; Zn 73 ppm					
	Anomalous Results: Ca 15.45 percent; Mg 7.87 percent					
BR18OUT7A	BR18OUT7A	11	298063.239	5686973.079	1275.786	Rock sample, not assayed; dark grey EB outcrop or subcrop
BR18OUTLIM7	BR18OUTLIM7	11	298039.168	5687024.962	1251.272	Rock sample, not assayed; limestone outcrop
BR18R1	BR18R1	11	298946.122	5686509.799	1262.327	Rock Sample, not assayed; EB schist with slight green tinge and limestone outcrop
Br18R2	Br18R2	11	298968.173	5686508.802	1262.087	Rock sample, not assayed; limestone outcrop

ILLUSTRATION # 22: SILVERBOY Showing taken from south to north towards a 1980's era machine trench.

Samples **140E41507_BR18R10A; 140E41508_BR18R9; 140E41510_BR18R9B;** and **140E41509_BR18R9A** were collected in the same 1980's era machine trench; and sample location is about 30 to 50 metres slope distance from the SILVERBOY Showing.

ILLUSTRATION # 23: David Piggin standing, in 1980's era trench, where rock sample **140E41507_BR18R10A** was collected. with results Au 0.018 ppm; **Ag 28.8 ppm; Bi 5.71 ppm; Ca 5.63 percent**; Cd 0.4 ppm; Cu 3.8 ppm; **Mg 1.54 percent**; Mo 1.7 ppm; **Pb 4020 ppm**; Sb 6.35 ppm; Zn 31 ppm. Anomalous results are in bold text. (IMG_2612 Drill Trench Dave.jpg). Note: Samples **140E41508_BR18R9; 140E41510_BR18R9B;** and **140E41509_BR18R9A** were collected in the trench cut slope about 5 to 10 metres from where David Piggin is standing**.**

ILLUSTRATION # 24: Rock sample **140E41507_BR18R10A** collected in old 1980's era machine trench. Quartz vein in a limestone host. On strike with quartz vein that leads to the SILVERBOY Showing. Results: Au 0.018 ppm; **Ag 28.8 ppm**; **Bi 5.71 ppm**; **Ca 5.63 percent**; Cd 0.4 ppm; Cu 3.8 ppm; **Mg 1.54 percent**; Mo 1.7 ppm; **Pb 4020 ppm**; Sb 6.35 ppm; Zn 31 ppm. Anomalous results are in bold text.

ILLUSTRATION # 25: Close up of Rock sample **140E41507_BR18R10A** collected in old 1980's era machine trench. A millimeter scale is given in the top part of the image. On strike with quartz vein that leads to the SILVERBOY Showing. Results: Au 0.018 ppm; **Ag 28.8 ppm**; **Bi 5.71 ppm**; **Ca 5.63 percent**; Cd 0.4 ppm; Cu 3.8 ppm; **Mg 1.54 percent**; Mo 1.7 ppm; **Pb 4020 ppm**; Sb 6.35 ppm; Zn 31 ppm. Anomalous results are in bold text. (Still01562 140E41507_BR18R10A.jpg)

ILLUSTRATION # 26: Digital microscope close up of Rock sample **140E41507_BR18R10A** collected in old 1980's era machine trench. A millimeter scale is given in the bottom left of the image. On strike with quartz vein that leads to the SILVERBOY Showing. Results: Au 0.018 ppm; **Ag 28.8 ppm**; **Bi 5.71 ppm**; **Ca 5.63 percent**; Cd 0.4 ppm; Cu 3.8 ppm; **Mg 1.54 percent**; Mo 1.7 ppm; **Pb 4020 ppm**; Sb 6.35 ppm; Zn 31 ppm. Anomalous results are in bold text.

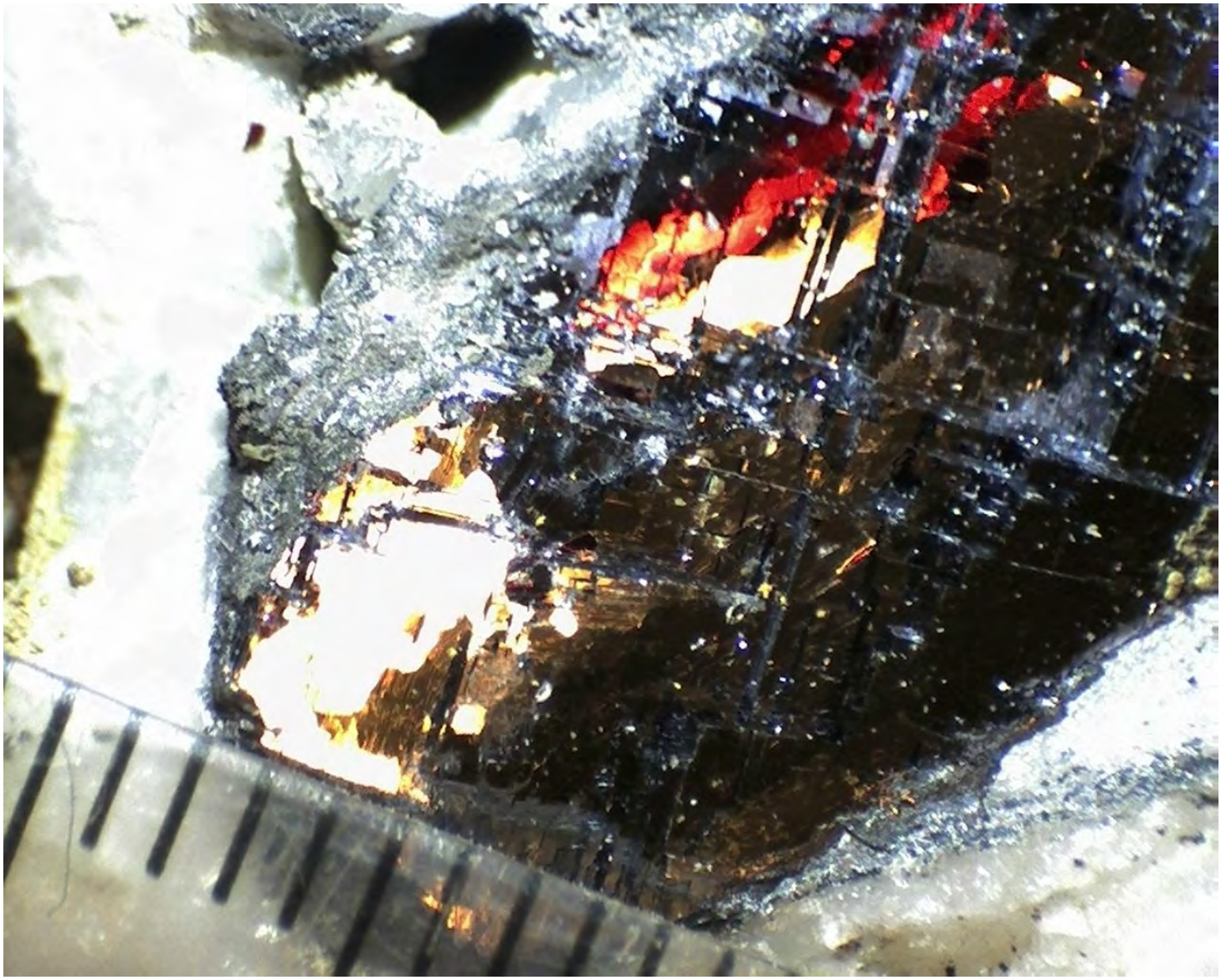


ILLUSTRATION # 27: Rock sample **10E41505_BR18R99A** collected in the BRECCIA AREA just northeast of the SILVERBOY Showing. Results: Au 0.013 ppm; **Ag 13.35 ppm; Bi 1.79 ppm; Ca 24.4 percent**; Cd 3.72 ppm; **Cu 348 ppm; Mg 9.43** percent; Mo 0.4 ppm; **Pb 686 ppm; Sb 125 ppm; Zn 573 ppm**. Anomalous results are in bold text.

ILLUSTRATION # 28: Rock sample **10E41505_BR18R99A** collected in the BRECCIA AREA just northeast of the SILVERBOY Showing. Results: Au 0.013 ppm; **Ag 13.35 ppm; Bi 1.79 ppm; Ca 24.4 percent**; Cd 3.72 ppm; **Cu 348 ppm; Mg 9.43** percent; Mo 0.4 ppm; **Pb 686 ppm; Sb 125 ppm; Zn 573 ppm**. Anomalous results are in bold text. A Visible sulphide bleb – silver and galena can be seen on the bottom edge of the central rock.

ILLUSTRATION # 29: Close up of rock sample **10E41505_BR18R99A** collected in the BRECCIA AREA just northeast of the SILVERBOY Showing. Results: Au 0.013 ppm; **Ag 13.35 ppm; Bi 1.79 ppm; Ca 24.4 percent**; Cd 3.72 ppm; **Cu 348 ppm; Mg 9.43** percent; Mo 0.4 ppm; **Pb 686 ppm; Sb 125 ppm; Zn 573 ppm**. Anomalous results are in bold text. A visible sulphide bleb – silver and galena can be seen on the bottom edge of the rock. A millimeter scale is given in the middle of the image. (CM181023-202940009 10E41505_BR18R99A cropped.jpg)

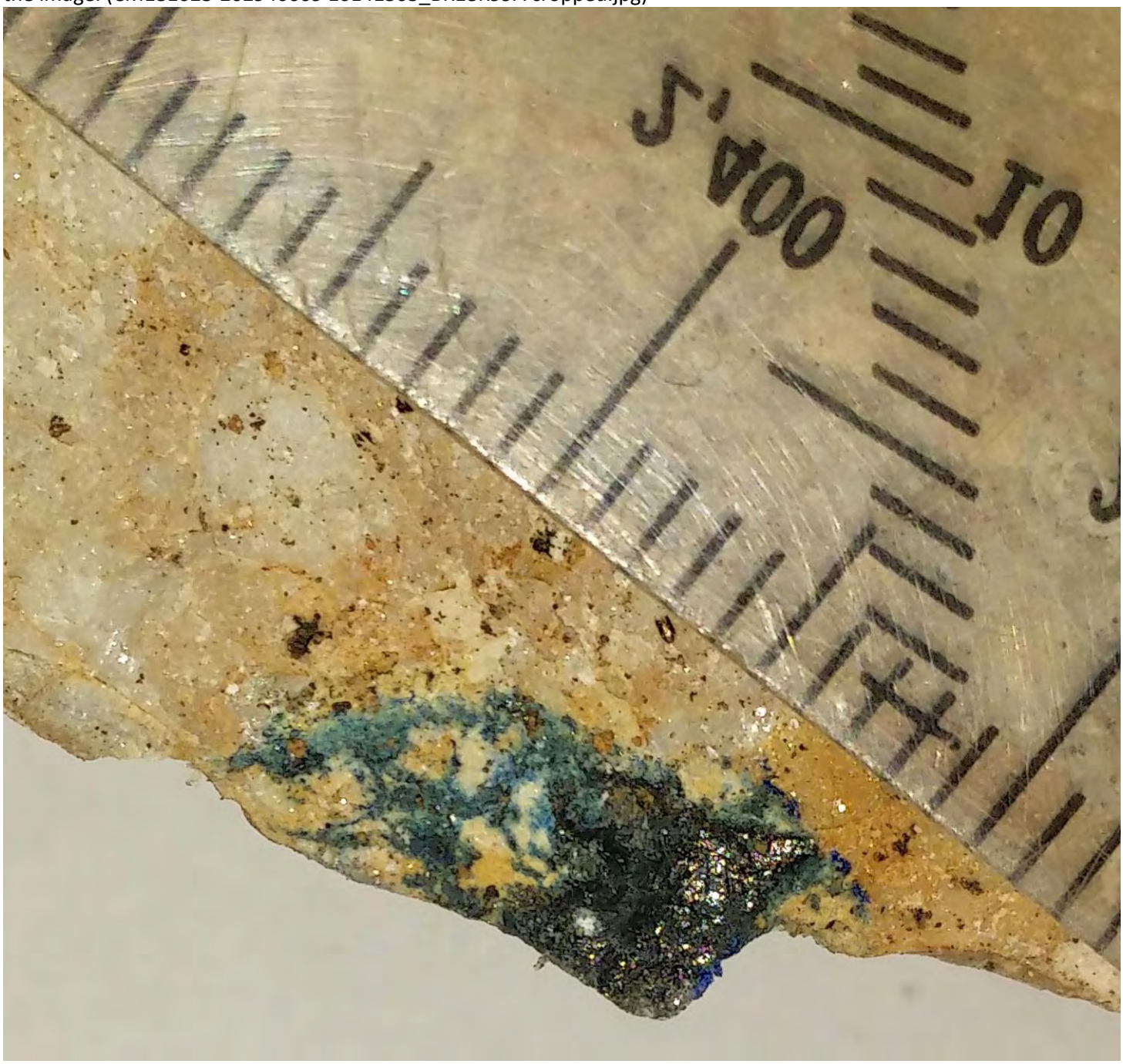
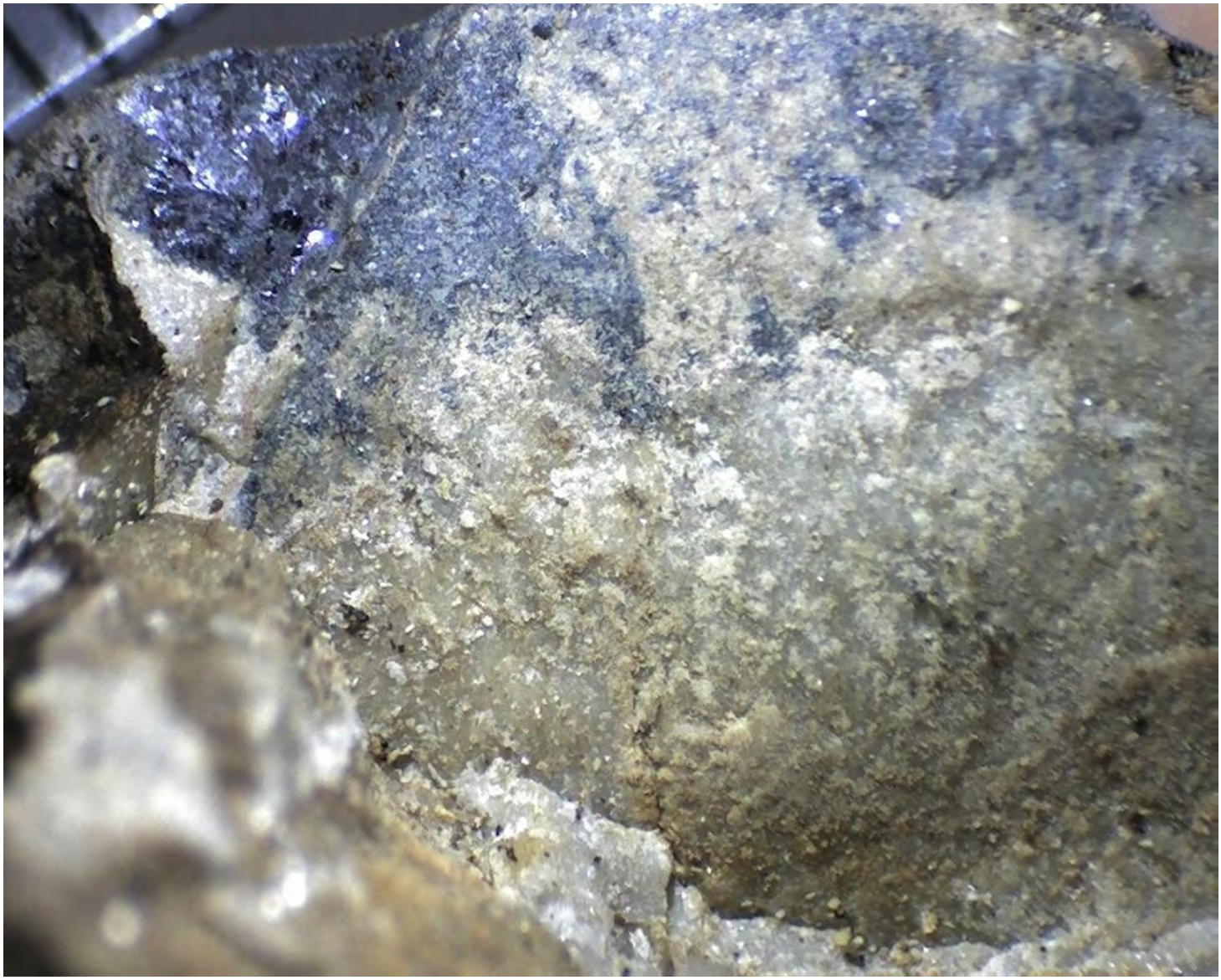


ILLUSTRATION # 30: Rock sample **140E41508_BR18R9** collected in the 1980's era machine trench. Results: Au 0.012 ppm; **Ag 11.45 ppm; Bi 4.94 ppm; Ca 22.5 percent; Cd 125.5 ppm**; Cu 90.5 ppm; **Mg 10.2 percent**; Mo 1.33 ppm; **Pb 6280 ppm; Sb 42.8 ppm; Zn 2.03 percent.** Anomalous results are in bold text. (IMG_2536 140E41508_BR18R9 cropped.jpg)

ILLUSTRATION # 31: Rock sample **140E41508_BR18R9** showing blackish sulfide bleb on edge of rock just above the letter "R". (IMG_2541 140E41508_BR18R9.jpg)

ILLUSTRATION # 32: Digital microscope image of rock sample **140E41508_BR18R9** collected in the 1980's era machine trench. Results: Au 0.012 ppm; **Ag 11.45 ppm; Bi 4.94 ppm; Ca 22.5 percent; Cd 125.5 ppm**; Cu 90.5 ppm; **Mg 10.2 percent**; Mo 1.33 ppm; **Pb 6280 ppm; Sb 42.8 ppm; Zn 2.03 percent.** Anomalous results are in bold text. A millimeter scale is given in the extreme top left corner of the image. (Still0153 140E41508_BR18R9.jpg)



<u>ILLUSTRATION # 33</u>: Rock sample **140E41510_BR18R9B** collected in the 1980's era machine trench. Results: Au 0.001 ppm; **Ag 3.76 ppm; Bi 3.62 ppm; Ca 18.3 percent**; Cd 3.91 ppm; Cu 2.5 ppm; **Mg 8.06 percent**; Mo 1.8 ppm; **Pb 1700 ppm;** Sb 3.68 ppm; **Zn 904 ppm.** Anomalous results are in bold text. Quartz vein in limestone host visible on left hand rock. No visible sulfides. (IMG_2559 140E41510_BR18R9B.jpg)

ILLUSTRATION # 34: Rock sample **140E41509_BR18R9A** collected in the 1980's era machine trench. Results: Au <0.001 ppm; Ag 0.43 ppm; Bi 0.85 ppm; **Ca 20.1 percent**; Cd 3.73 ppm; Cu 5.2 ppm; **Mg 8.85 percent**; Mo 2.34 ppm; **Pb 170.5 ppm**; Sb 3.32 ppm; **Zn 661 ppm.** Anomalous results are in bold text. Quartz vein in limestone host; and a visible sulfide bleb on bottom right hand corner of rock next to the letter "A". (IMG_2548 140E41509_BR18R9A cropped.jpg)

ILLUSTRATION # 35: Close up of rock sample **140E41509_BR18R9A.** A millimeter scale is given on the right. (CM181025-070138005 140E41509_BR18R9A cropped.jpg)

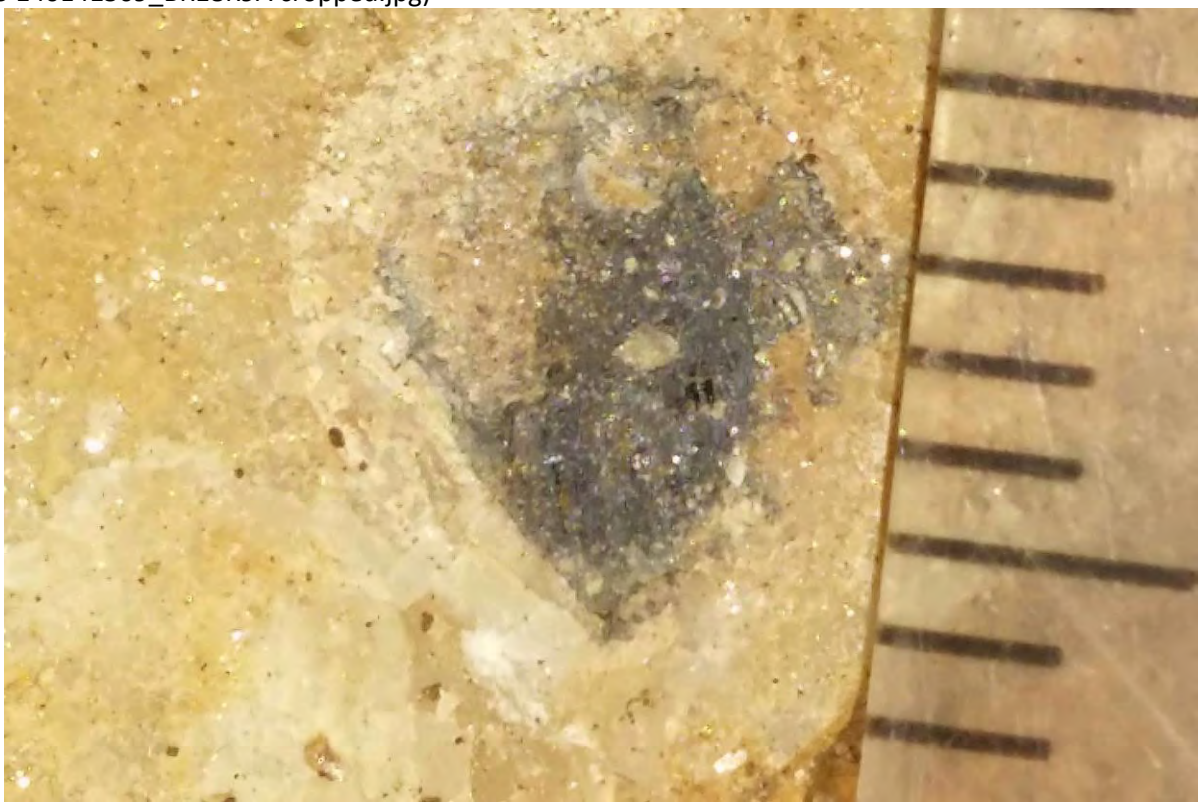


ILLUSTRATION # 36: Rock sample **140E41506_BR18R7Q**. Results: Au 0.001 ppm; Ag 0.11 ppm; Bi 0.09 ppm; **Ca 15.45 percent**; Cd 0.3 ppm; Cu 5.2 ppm; **Mg 7.87 percent**; Mo 0.91 ppm; Pb 16.1 ppm; Sb 3.57 ppm; Zn 73 ppm**.** Anomalous results are in bold text. No visible mineralization. (IMG_2507 140E41506_BR18R7Q.jpg)

In addition to collecting rock samples for assay, a number of new limestone outcrops were observed, photographed and GPS'd while prospecting an area near the claim boundary. No mineralization was observed therefore, no samples were collected. There appears to be a structure or possibly a fault structure formed by a limestone outcrop which goes in a southeasterly direction from waypoint OutLIM18A through (OutLIM18AA, OutLIM18AAA) to OutLIM18AAAA (see Table below); and continuing through to OutLIM18B and to OutLIM18C. The area around this outcrop has recently been logged and would be a good target for a soil geochemical survey.

TABLE 20: GEOLOGY Data showing the location of limestone outcrops not previously mapped.

Waypoint	NAD 83 UTM Zone	Easterly	Northerly	Elevation (m)	Comment
OutLIM18A	11	298927.317	5686539.612	1269.537	limestone outcrop; no sampled collected
OutLIM18AA	11	298936.817	5686533.442	1270.258	limestone outcrop; no sampled collected
OutLIM18AAA	11	298949.606	5686516.858	1266.653	limestone outcrop; no sampled collected
OutLIM18AAAA	11	298958.767	5686504.272	1261.847	limestone outcrop; no sampled collected
OutLIM18B	11	298970.748	5686509.690	1260.164	limestone outcrop; no sampled collected
OutLIM18C	11	298980.699	5686512.761	1259.684	limestone outcrop; no sampled collected

ILLUSTRATION #37: The sample site for waypoint BR18R2. David Piggin collecting GPS waypoint for geological mapping of new limestone outcrop near the boundary; and within a logged area. This limestone outcrop is trending from the southeast (right) to northwest (left). Locations: NAD 83 UTM Zone 11. 298968.173E. 5686508.802N (IMG_2585 Dave outcrop.jpg).

DEPOSIT MODELS: (See **ILLUSTRATION #17** on Page 38 above)
In the MINFILE database, the deposit character, classification, and Type for MINFILE 082M 069 SILVER MINNOW is shown as **Vein; Epigenetic, Hydrothermal; and Type - I05 : Polymetallic veins Ag-Pb-Zn+/- Au.**

There is a need to investigate a suitable deposit model for the highly anomalous Ag Pb Zn (Cu Au) mineralization including various polymetallic carbonate replacement deposit (CRD) models. Although deposit modeling is beyond the expertise of the author, a brief review of literature on polymetallic Ag Pb Zn and Pb Zn deposits, and related carbonate replacement deposits was conducted to gain insight into the location and placement of the mineralized zones relative to important tectonic, geological and structural features. The Ag Pb Zn (Cu Au) mineralization at BARRIERE RIDGE was:

- Located 5 kilometres south of the MID- CRETACEOUS Baldy Batholith **[Kg]** (estimate 30 km x 20 km in size) a massive granitic intrusion. This rather large intrusion may have had a significant impact on the Early Cambrian - Tshinakin Limestone/Dolostone **[EBGt]** formation (Schiarrizza and Preto 1987); and the DEVONO-MISSISSIPPIAN Eagle Bay Assemblege.
- Located 5 kilometres east of the tectonic boundary between the SLIDE MOUNTAIN TERRANE and the KOOTENAY TERRANE.
- Situated near the faulting confluence of, or in the vicinity of the Barriere River Fault; the Birk Creek Fault; the Haggard Creek Fault; the Harper Creek Fault; and the Russell Creek Fault. These are all significant faults that may have played a role in the flow of mineralized fluids within the EBGt.
- Hosted in limestone/dolostone (EBGt) within quartz veins, veinlets, stockwork and breccia zones.
- Since the EBGt is classified as Early Cambrian the rocks are very old therefore, overtime, there has been a potential for many mineralizing events.
- On the contact between the EBG (greenstone unit) and the EBGt may play a role in the deposit model.

The known showings SILVER MINNOW MINFILE, SILVERBOY, SILVER TRAIL, BRECCIA Area and SILVERGAL have not been trenched or drilled to assess potential deposit models. Also, the these showings have not been investigated in relation to the Fugro - Helicopter-borne HELITEM Time Domain Electromagnetic and Magnetic Geophysical Survey and Interpretation Report.

The mineralization at the SILVER MINNOW, SILVER TRAIL, SILVERBOY, and SILVERGAL appeared to be very similar from a visual point of view, and based on assays. The SILVERGAL showing is 3 kilometres south of the other showings and on the EBGt trend therefore, there may be a number of other zones yet to be discovered.

2. SOIL SAMPLES: ROAD SOIL LINE18

A total of 20 soil samples (ROAD SOIL LINE18: 475 lineal metres) were collected from cut slopes on the Russell FSR Branch 31 just south of the junction with Russell FSR Branch 8. The samples were collected in an easterly to northeasterly direction at 25 metre intervals using a hipchain, geotul, and trowel; and sample sites were GPS'd and data recorded.

Branch 31 is a relatively new road and has not been explored. The purpose of this soil line was to test the presence of Ag Pb Zn (Cu Au) in soils as Branch 31 is between the SILVERGAL Showing and the SILVER MINNOW MINFILE.

The point of commencement was NAD83 UTM Zone 11. 298560.605E. 5684076.821N and elevation 994.122 metres; and the end of traverse was Zone 11. 298953.019E. 5684347.372N and elevation 1034.256 metres. Slopes draining towards the road cut slope were gentle, did not exceed 10 percent, and were composed of glacial till. None of the soil samples have been assayed yet. A summary list of the ROAD SOIL LINE18 soil samples, station number, GPS location, and observations is given in the Table below after the following Illustrations.

ILLUSTRATION #38: ROAD SOIL LINE18 – Photo of 20 soil samples collected on Russell FSR Branch 31. A total of 475 lineal metres was completed. The samples were not assayed.

ILLUSTRATION #39: ROAD SOIL LINE18 – Photo of 20 soil samples collected on Russell FSR Branch 31. A total of 475 lineal metres was completed. The samples were not assayed. Map not to scale.

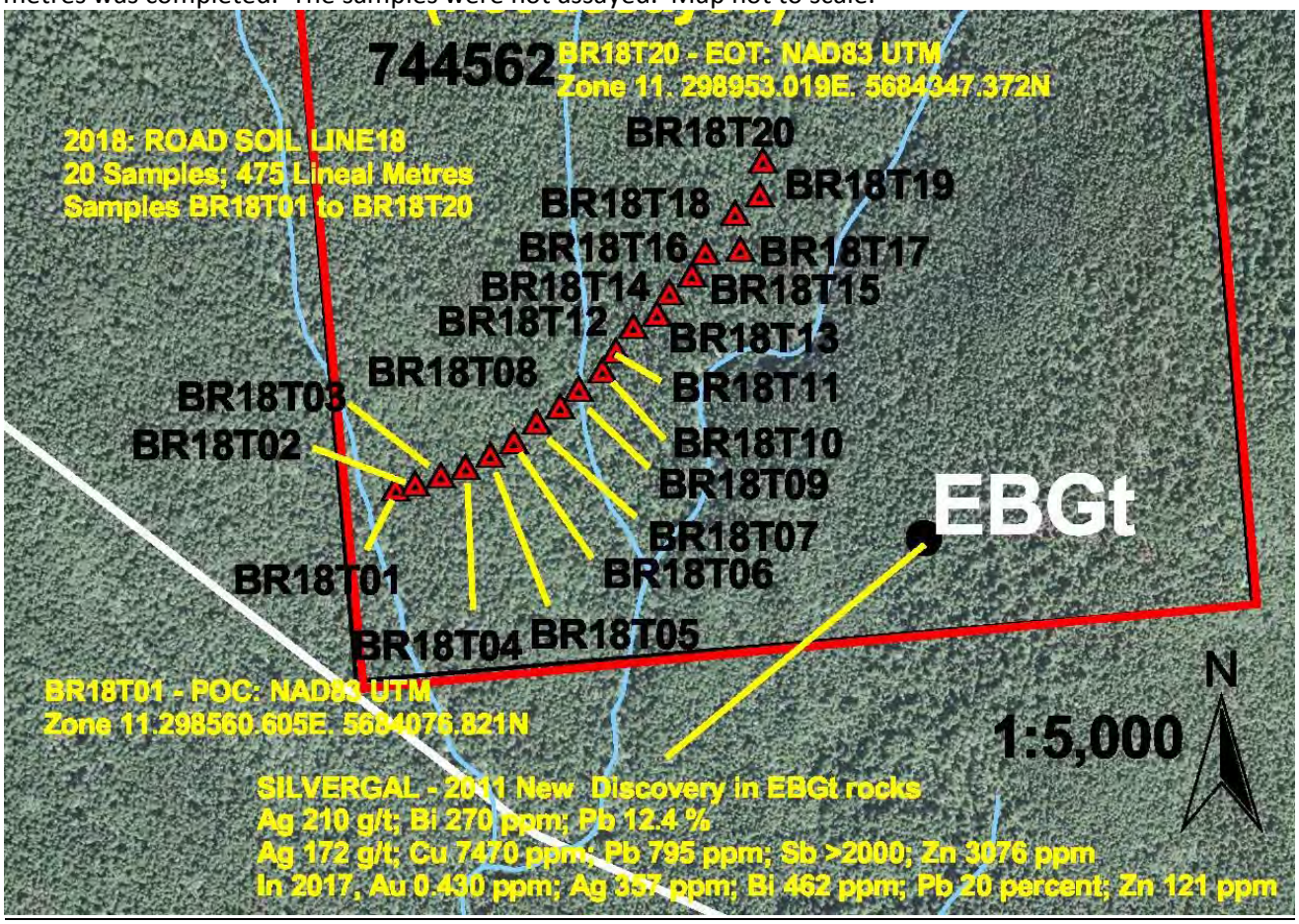


ILLUSTRATION #40: Location of ROAD SOIL LINE18 sample BR18T01 at NAD83 UTM Zone 11. 298560.605E. 5684076.821N (IMG_2615 BR18T01.jpg).

TABLE 21: LIST OF SOIL SAMPLES: 20 Collected On ROAD SOIL LINE18 showing GPS Locations, Data and Observations.

Waypoint	Soil Line Stn	NAD 83 UTM Zone	Easterly	Northerly	Elevation (m)	Soil Hor.	Soil Color	Soil Grade	Soil Texture	Slope (%)	Comments
BR18T01	0	11	298560.605	5684076.821	994.122	Bm	yellowish brown	poorly graded	CL	0	cutslope of road
BR18T02	25	11	298579.411	5684079.086	989.796	B	light brown	poorly graded	CL	0	cutslope of road
BR18T03	50	11	298605.039	5684084.685	990.036	B	light brown	poorly graded	CL	0	cutslope of road
BR18T04	75	11	298629.995	5684089.696	990.757	B	light brown	poorly graded	CL	0	cutslope of road
BR18T05	100	11	298655.520	5684098.305	994.362	B	slightly grey light brown	poorly graded	CL	0	cutslope of road

BR18T06	125	11	298679.562	5684108.232	994.122	B	light brown	poorly graded gritty	CL	0	cutslope of road
BR18T07	150	11	298703.890	5684124.075	997.486	B	light brown	poorly graded gritty	CL	0	cutslope of road
BR18T08	175	11	298729.173	5684135.942	995.083	B	rusty light brown	poorly graded clayey	SCL	0	cutslope of road next to culvert
BR18T09	200	11	298748.087	5684150.794	1003.494	B	yellowish light brown	poorly graded slightly gritty	CL	0	cutslope of road
BR18T10	225	11	298773.453	5684165.813	1027.287	B	yellowish light brown	poorly graded gritty	CL	5	cutslope of road limestone host
BR18T11	250	11	298788.506	5684182.376	1011.665	B	redish yellowish light brown	poorly graded gritty	SCL	5	cutslope of road limestone host
BR18T12	275	11	298808.220	5684203.590	1016.232	B	light brown	poorly graded slightly gritty	CL	5	cutslope of road limestone host
BR18T13	300	11	298832.570	5684213.310	1025.604	B	light brown	poorly graded gritty	SCL	5	cutslope of road limestone host
BR18T14	325	11	298846.906	5684231.899	1019.596	Bm	light brown	poorly graded gritty	CL	5	cutslope of road limestone host stoney
BR18T15	350	11	298870.727	5684246.204	1030.892	Bm	light brown	poorly graded gritty	CL	5	cutslope of road limestone host
BR18T16	375	11	298887.084	5684266.318	1029.690	Bm	light brown	poorly graded gritty	SCL	5	cutslope of road limestone host stoney
BR18T17	400	11	298920.918	5684264.727	1051.800	Bm	brown	poorly graded slightly gritty	SCL	5	cutslope of road limestone host

BR18T18	425	11	298920.048	5684300.265	1034.737	Bm	brown	poorly graded gritty	SCL	5	cutslope of road stoney
BR18T19	450	11	298946.612	5684315.116	1041.706	Bm	yellowish brown	poorly graded gritty	CL	5	cutslope of road
BR18T20	475	11	298953.019	5684347.372	1034.256	Bg	grey redish brown	poorly graded	CL	5	cutslope of road

3. STREAM SEDIMENT SAMPLES: No stream sediment or moss samples were collected for this report.

4. Fugro Airborne Geophysics/Intrepretation Report (Anomalous Rock, Soil, and Stream Samples).

There is a need to compare, contrast, interpret, and field check the results of the Fugro Airborne Geophysics Report and follow-up Interpretations Report, using a spatial GIS database, with the following data included:

- Anomalous rock, soil, and stream sediment assay results from ARIS 32383, 33190, 33744, 34651, 35500, 36263, and 37066.
- Anomalous rock assay results from this report.
- Historical data and geological mapping from old ARIS reports where appropriate.
- Historical data collected by David Piggin for a Prospector Assistance Grant #98/99 P94 (1998-43).
- Existing geological mapping, and existing fault and structural information.
- Additional geological mapping that may done in 2019.

Outputs from this spatial information would be used to prioritize exploration areas for further targeting, prospecting, geochemical and ground geophysical surveys, trenching and drilling; and to provide a framework to field test various geophysical and structural anomalies identified by the Fugro Airborne Survey and Interpretation Report.

5. FIRST NATIONS:

Over the last number of years, a number of written, telephone, and/or face-to-face meetings were held with First Nations to assess areas of ownership, traditional use, concerns, and proposed mineral exploration works.

Based on current government information, the following First Nations may have aboriginal interests in the BARRIERE RIDGE mineral tenure(s) area. This is a preliminary First Nations contact list and should not be considered conclusive.

- North Thompson – Simpcw First Nation, Chief and Council, PO Box 220, Barriere, British Columbia, V0E 1E0 Phone: 250-672-9995, Fax 250-672-5858
- Adams Lake Indian Band, Chief and Council, Hillcrest Road, PO Box 588, Chase, British Columbia, V0E 1M0 Phone: 250-679-8841, Fax: 250-679-8816
- Neskonlith First Nation, Chief and Council, PO Box 608, Chase, British Columbia, V0E 1M0 Phone: 250-679-3295, Fax 250-679-5306
- Little Shuswap First Nation, Chief and Council, PO Box 1100, Chase, British Columbia, V0E 1M0 Phone: 250-679-3203, Fax 250-679-3220

FIRST NATIONS letter 2018: A First Nations information letter/package was completed and submitted to each First Nation on or about July 17, 2018. The letter included information on proposed work plus an overview tenure map.

Follow-up telephone calls were also completed. A number of information sharing meetings were also completed. A written reply was received from one First Nation, based on a desktop review, which stated in part as follows:

> *"…traditional uses of the land and resources in the E/N Barriere Lakes area are (but not limited to) the following :*
> 1. *Fishing:*
> 2. *Hunting;*
> 3. *Trapping;*
> 4. *Plant Gathering – (Medicinal, Food, etc)*
> 5. *Outdoor Recreation;*
> 6. *Etc.*
>
> *…The Secwepemc utilise the land and resources throughout different times across different seasons and there is no formal schedule for their presence there…"*
> (Referrals Coordinator, September 2, 2018)

FIRST NATIONS letter 2017: A First Nations information letter/package was completed and submitted to each First Nation on or about May 15, 2017. The letter included information on proposed work plus an overview tenure map. Follow-up telephone calls were also completed.

FIRST NATIONS letter 2016: A First Nations information letter/package was completed and submitted to each First Nation between May 17, 2016 and May 19, 2016. The letter included information on proposed work plus an overview tenure map. Follow-up telephone calls were also completed.

FIRST NATIONS letter 2015: A First Nations information letter/package was completed and submitted to each First Nation on April 29, 2015.

FIRST NATIONS letter 2014: A First Nations information letter/package was completed and submitted to each First Nation on February 26, 2014. In 2014, meetings were held with Simpcw First Nations, Little Shuswap First Nation, and the Adams Lake Band.

In 2011 and 2012, a number of informal meetings, telephone conversations, and informational letters were shared with First Nations. A two day First Nations sponsored workshop was attended by David J. Piggin and Dale Brittliffe, P.Geo (OREX/Astral) which was held at the Quaaout Lodge and Spa, 1663 Little Shuswap Road in Chase, B. C. [250-679-3090] which is located on the Little Shuswap Firs Nation reserve.

6. PHYSICAL WORK:

(a) Trail Brushing: The proposed physical work (trail brushing) was communicated in writing to First Nations through an annual communications letter dated July 2018, meetings, and during follow-up telephones (see map in APPENDICIES).

An old exploration trail (1980s) into DL4023 KDYD WHITE ROCK MC was brushed to provide safety, evacuation, and mineral exploration access to the SILVER MINNOW, SILVERBOY, SILVER TRAIL, BRECCIA ZONE, and other showings on the BARRIERE RIDGE Claims. Work was completed by David J. Piggin and Judy Burr between August and September 2018. Two personal chainsaws were used plus chainsaw protective chaps, hard hats, and ear/eye protection. An estimated 500 metres of access trail was brushed-out including turn-arounds. A soil slump and slide, which occurred in the spring of 1997 during spring rains, made the middle and lower section of the trail inaccessible to 4X4 traffic and were not brushed. Also, the fire season and hazard were extreme therefore, chainsaw work was kept to an absolute minimum and the required fire tools were kept at the ready in order to prevent forest fires.

Some firewood sized pieces were removed from the site (3 to 4 pickup truck loads); and were given (free) to a local Kamloops resident that had ran out of firewood the previous winter, and had limited ability or finances to obtain their own firewood.

(b) Hand Trenches: Two small hand trenches were completed to collect rock samples (See map in APPENDICIES).

TABLE # 22: HAND TRENCHES: The following table gives the location and size of the hand trenches.

Waypoint Name	NAD 83 UTM Zone	Easterly	Northerly	Elevation (m)	Trench Type	Hand Trench Size
BR18R99	11	297973.146	5687517.864	1232.767	hand trench	0.6 m x 0.4 m x 0.3 m; sample collected 10E41505_BR18R99A
BR18R7Q	11	298003.755	5686974.710	1250.551	hand trench	0.90 m x 0.60 m x 0.25 m; sample collected 140E41506_BR18R7Q

7. SOIL SLIDES BELOW ACCESS TRAIL – Tenure 744542:

The access trail in to the Tenure 744542 has been used by recreational ATV users and by 4x4 traffic but no mineral exploration (machinery) has been in the area since the 1980s or 1990s. In July 2017, two recent soil slides were observed in steep terrain below the access trail to the SILVER MINNOW MINFILE, WHITE ROCK MINFILE and SILVER TRAIL Showings. These slides were not evident during the 2016 field season. The 2 slides were located <100 metres north of the SILVER TRAIL Showing on a steep west facing slope at over 70 percent.

Waypoint: **BR17-SLUF1**: NAD 83 UTM Zone 11. 298020.098E. 5686997.995N; Elevation 1245 metres
Ocular estimate: 10 metres wide along trail edge, and 100 metres down slope (slope distance).

Waypoint: **BR17-SLUF2**: NAD 83 UTM Zone 11. 298017.507E. 5687018.761N; Elevation 1252 metres
Ocular estimate: 25 metres wide along trail edge, and 150 metres down slope (slope distance).

It is possible the 2 slides occurred naturally on the steep slope below the road, and destabilized the leading edge of the fill slope above the slide. Based on observations and photos of the road surface, there was no indication that water was running down the road (see 4 pictures below) causing the outer-edge of the fill slope to slide down the hill; and there was no culvert in the fill slope which could have delivered water into the slope.

Observations and photographs in 2018 indicated the slide is working it's way up hill and may completely cut off the road in future years.

III – CONCLUSIONS AND RECOMMENDATIONS:

The following conclusions and recommendations were made based on the exploration work completed by David J. Piggin for Mantra Resources Inc. from December 15, 2017 to December 10, 2018 on the BARRIERE RIDGE claims. The Total Value of Work for Event 5722846 was $ 12,644.55.

Results, conclusions and recommendations from three previous ARIS reports 32383, 33190, 33744, 34651, 35500, 36263 and 37066 should be considered along with the conclusions and recommendations of this report.

SUMMARY:

Based on 2011/2012 Fugro Airborne Geophysics Survey; the Fugro Interpretations Report from 2016; the discovery of the high grade Ag Pb Zn – SILVERBOY Showing; SILVERGAL Showing; SILVER TRAIL Showing; the Breccia Area showings; various MINFILE occurrences (SILVER MINNOW MINFILE 082M 069); the results of this report and previous exploration works to date; further exploration work is warranted. The highest priority targets are as follows:

- The Ag Pb Zn SILVER MINNOW, SILVERBOY and BRECCIA AREA.
- The Ag Pb Zn SILVERGAL Showing area.
- The Ag Pb Zn SILVER TRAIL Showing.
- The under explored area between the SILVER MINNOW, SILVERBOY, SILVER TRAIL, and SILVERGAL.
- Follow-up anomalies in soil grids SILVERGAL1, SILVER MINNOW1, other prospecting anomalies.
- Completion of the proposed SILVERMINNOW2 grid.

Exploration should include as follows: prospecting, prospecting and sourcing known soil anomalies; geological mapping; spatial database management; soil, stream, and outcrop sampling; ground geophysics surveys; ground truth Airborne Geophysical Survey results and interpretations; trenching; and drilling as well as First Nations consultation. A five year program of $1,000,000 is recommended commencing in the summer and fall of 2019.

Summary of 2018 Exploration and Results:

The following is a brief summary of the works completed:

- **Expenditures:** Total Applied Work Value $ 12,644.55 on 485.1497 hectares.
- **Samples Collected:** A total of 30 samples (10 rock and 20 soil) were collected and 6 rocks assayed. Remaining samples (4 rock, 20 soil) will be assayed in 2019, and reported in a future assessment report.
- **ROAD SOIL LINE18 - Soils:** 475 metres of line was completed in Tenure 744562.
- **Brushing:** 500 metres of access trail was brushed.
- **Hand Trenches:** 2 hand trenches were completed 0.6 m x 0.4 m x 0.3 m for sample 10E41505_BR18R99A; and 0.90 m x 0.60 m x 0.25 m for sample 140E41506_BR18R7Q
- **Anomalous Results:**

SILVERBOY AND BRECCIA AREA:
140E41507_BR18R10A: Anomalous Results: Ag 28.8 ppm; Bi 5.71 ppm; Ca 5.63 percent; Mg 1.54 percent; Pb 4020 ppm
10E41505_BR18R99A: Ag 13.35 ppm; Bi 1.79 ppm; Ca 24.4 percent; Cu 348 ppm; Mg 9.43 percent; Pb 686 ppm; Sb 125 ppm; Zn 573 ppm
140E41508_BR18R9: Ag 11.45 ppm; Bi 4.94 ppm; Ca 22.5 percent; Cd 125.5 ppm; Mg 10.2 percent; Pb 6280 ppm; Sb 42.8 ppm; Zn 2.03 percent
140E41510_BR18R9B: Ag 3.76 ppm; Bi 3.62 ppm; Ca 18.3 percent; Mg 8.06 percent; Pb 1700 ppm; Zn 904 ppm
140E41509_BR18R9A: Ca 20.1 percent; Mg 8.85 percent; Mo 2.34 ppm; Pb 170.5 ppm; Zn 661 ppm

SILVER TRAIL Showing:
140E41506_BR18R7Q: Ca 15.45 percent; Mg 7.87 percent

- **Data:** Collated, digitized, photographed, and mapped the location of samples and including assayed results.
- **Geological Features:** Recorded and GPS geological features such as an EBGt host limestone not previously known.
- **Sampled and Prospected** recently logged areas and new roads for rock and soil anomalies; and outcrop exposures.
- **Physical Work:** 500 metres of exploration trail was brushed safety, evacuation, and mineral exploration access to the SILVER MINNOW, SILVERBOY, SILVER TRAIL, and BRECCIA AREA.

- **Fugro**: Reviewed the report: *"Magnetic and EM Interpretation Airborne Magnetic and HeliTEM Survey BARRIERE RIDGE and HONEYMOON Blocks British Columbia - Job No. 12578"* dated February 2016.
- **Fugro:** Reviewed the reprocessing and targeting study "*Magnetic and EM Interpretation Airborne Magnetic and HELITEM Survey - BARRIERE RIDGE AND HONEYMOON Blocks, British Columbia - Job No. 12578"* dated February 2016.
- **Soil Slough:** Observed and recorded 2 soil sloughs below a 4x4 access trail near the SILVER TRAIL showing.
- **Research:** Conducted literature and general research for publications related to the Eagle Bay Assemblege and Polymetallic and Carbonate Replacement Deposit Models (i.e. Geoscience BC, BC Geological Survey, websites).
- **FIRST NATIONS Letter 2018:** A First Nations information letter/package was completed and submitted to each First Nation in July 2018. The package included an overview summary with maps, tenure information, proposed works, and other information. This letter was followed up with phone calls and face-to-face meetings.
- **Database management and update:** Continued to update and work on an EXCEL and DBF database.

Proposed Exploration Work: - THE DETAILS

1. HIGH PRIORITY SAMPLING, TRENCHING, AND DRILLING AREAS.

It is recommended the following high priority or main showings be trenched and drilled:

- **SILVERGAL Showing:**
  BR17-AP04: Au 0.430 ppm; Ag 357 ppm; Bi 462 ppm; Pb 20 percent; S 3.04 percent; Sb 92.3 ppm; Zn 121 ppm
  10E41157 BR11Q9C: Ag 220 g/t, Pb 12.4 %, Bi 270 ppm, Cr 202 ppm, S 1.69 %, Se 110 ppm
  10E41160 BR11Q9D: Ag 172 g/t, As 600 ppm, Cu 7470 ppm, Pb 795 ppm, Sb >2000 ppm, Zn 3076 ppm

- **MINFILE 082M 069 SILVER MINNOW (aka SILVER MINERAL):** In 1925**, Ag 927 g/t Au 0.69 g/t.**
  BR17-AP03: Au 0.116 ppm; Ag 428 ppm; Fe 1.46 percent; Pb >20 percent; S 6.33 percent; Sb 430 ppm; Zn 1.605 percent
  10E41477_BR17SM1: Au 0.11 ppm; Ag 308 ppm; Pb 20 percent; S 3.04 percent; Sb 277 ppm; Zn 1.23 percent
  BR17-AP02: Ag 9.17 ppm; Ca 0.5 percent; Fe 0.63 percent; Pb 5100 ppm; Sb 13.4 ppm; Zn 1030 ppm
  10E41181 SMQCH7: Ag 171 ppm; Pb 14.4 %; Zn 6490 ppm (over 1 m)

- **SILVERBOY Showing:** ,
  10E41072 SM16R2:
  Ag 246 ppm; Bi 56.6 ppm; Cu 171.5 ppm; Cd 190 ppm; Pb 16.55 %; Sb 237 ppm; Se 35 ppm; Sn 2 ppm; Te 29.3 ppm; Zn 5.34 %.
  140E41507_BR18R10A: Ag 28.8 ppm; Bi 5.71 ppm; Ca 5.63 percent; Mg 1.54 percent; Pb 4020 ppm
  10E41505_BR18R99A: Ag 13.35 ppm; Bi 1.79 ppm; Ca 24.4 percent; Cu 348 ppm; Mg 9.43 percent; Pb 686 ppm; Sb 125 ppm; Zn 573 ppm
  140E41508_BR18R9: Ag 11.45 ppm; Bi 4.94 ppm; Ca 22.5 percent; Cd 125.5 ppm; Mg 10.2 percent; Pb 6280 ppm; Sb 42.8 ppm; Zn 2.03 percent
  140E41510_BR18R9B: Ag 3.76 ppm; Bi 3.62 ppm; Ca 18.3 percent; Mg 8.06 percent; Pb 1700 ppm; Zn 904 ppm
  140E41509_BR18R9A: Ca 20.1 percent; Mg 8.85 percent; Mo 2.34 ppm; Pb 170.5 ppm; Zn 661 ppm

- **SILVER TRAIL Showing**:,
  BR17-AP01:
  Ag 73.7 ppm; Ca 20.9 percent; Cu 903 ppm; Fe 1.26 percent; Mg 11.6 percent; Pb 1.795 percent; Sb 107.5 ppm; Zn 5950 ppm
  10E41081_BR14R73: Ag 117 ppm; Ca 19.2 %; Cu 1970 ppm; Mg 10.65 %; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %
  10E41085_BR14R77: Ag 19.7 ppm; Ca 18.65 %; Mg 9.81 %; Pb 5060 ppm
  10E41077_BR14R70: Ag 18.65; Ca 21.5 %; Mg 10.5 %; Pb 1410 ppm

10E41083_BR14R75: Ag 16.8 ppm; Ca 20.5 %; Mg 11 %; Pb 8780 ppm; Zn 2680 ppm
10E41078_BR14R71: Ag 12.95; Ca 22.1 %; Mg 10.8 %; Pb 6150 ppm; Sb 125.5 ppm; Zn 1020 ppm

SILVERGAL is located on a flat log landing. The access road to the landing will require an ATV, and is not suitable for a 4x4 pickup. The SILVERBOY is about 10 metres passed the end of an exisiting machine trench in a large outcrop. Access is through a regenerated logged block (trees 2 to 5 metres tall). The SILVER MINNOW is on steep ground and will require field study to determine the "best practice" route into the showing for trenching and/or drilling. The SILVER TRAIL is located in the cutslope of an existing exploration trail and access is by 4x4.

4. HIGH PRIORITY GROUND GEOPHYSICS AND GEOCHEMICAL SURVEYS:

To target trench and drill site selection, additional ground geophysical surveys, soil geochemical surveys, and prospecting are required as follows:

SILVERGAL: Prospecting; geological mapping, ground geophysics; and expand the (existing 2 lines) SILVERGAL1 soil geochemical grid.

SILVERMINNOW: Prospecting; ground geophysics; and soil geochemical surveys.
Complete the proposed SILVERMINNOW2 GRID soil geochemical grid along the south boundary of DL 4023 KDYD WHITE ROCK MC. Also, expand this grid to surround DL 4023 KDYD WHITE ROCK MC. This should include outcrop sample 10E41016 SM11R999 and 10E41017 SM11R999 which is a new malachite quartz limestone breccia outcrop east of the NW corner DL 4023 KDYD WHITE ROCK MC and also, the new SILVERBOY discovery. Also, this soil grid should be extended to the south to include previously completed SILVERMINNOW1 GRID (existing 2 lines).

SILVERBOY and BRECCIA AREA: Prospecting, ground geophysics and expand proposed SILVER MINNOW2 GRID soil geochemical grid to include the SILVERBOY.

SILVER TRAIL Showing: Conduct further outcrop sampling and complete an east west soil grid in conjunction with the SILVER MINNOW – SML2 Grid.

Access Trail Switchback: 400 – 500 metres South of SILVER MINNOW and SILVER TRAIL: Conduct further outcrop sampling and completed an east west soil grid in conjunction with the SILVER MINNOW – SML1 Grid previously reported in ARIS 33190.

The prospecting, ground geophysics, and soil surveys will identify additional areas for trenching and drilling; and may test the strike, dip, structure, mineralization; as well as determine if the showings are part of one or more structures.

5. ANOMALOUS ROCK, SOIL, AND STREAM SEDIEMENTS FOR FOLLOW-UP:

Based on Open File 1997-9, ARIS 33190, 34651 and this report, the following anomalous samples require follow-up:

OPEN FILE 1997-9 – Regional Till Survey: Numerous first order Au, Ag, Cu, Pb, Zn till anomalies were identified in Open File 1997-9 for example **969540: Au 84 ppb, Ag 0.8 ppm, As 83 ppm, Cu 101 ppm, Pb 61 ppm, Zn 229** which is located about 800 metres north east of the SILVERGAL Showing.

SILVERGAL1 SOIL GRID: It is proposed that this soil grid be expanded.
14E41216: Au 80 ppb, W 0.2 ppm.
14E41233: Au 30 ppm, Se 0.3 ppm.
14E41239 repeat: Au 11 ppb, Ag 0.7 ppm, Cu 55.6 ppm, Fe 4.28 %, Ge 34.8 ppm, Zn 116.7 ppm
14E41270: Au 10 ppb, Mo 1.18 ppm

14E41232, 14E41235, 14E41230, 14E41231, 14E41240, and 14E41254 all carried Au 7 ppb
14E41216: Ag 1.1 ppm, Bi 4 ppm, Fe 6.04 %, Mo 2 ppm, Pb 1117 ppm
14E41212, 14E41222, 14E41227, 14E41236, and 14E41265 were all anomalous with Ag 0.5 ppm
14E41266 returned Cu 179.0 ppm; and sample 14E41266 returned Pb 246.9 ppm.

SILVER MINNOW1 SOIL GRID: It is proposed that this soil grid be expanded.
14E41285: Au 26 ppb, Ag 0.3 ppm, Cu 149.4 ppm, Fe 5.55 %, Mo 1.31 ppm.
14E41606: Au 12 ppb
14E41605: Ag 0.5 ppm, Cu 63 ppm, Zn 188 ppm
14E41608: Cu 59.7 (90 %ile being Cu 52.32 ppm). 14E41609: Cu 84.4 ppm 14E41625: Cu 75.3 ppm.
14E41297: Pb 28 (90 %ile being Pb 24.72 ppm).
14E41630: Pb 26 ppm 14E41625: Pb 27.3 ppm 14E41299: Pb 25.5 ppm.

PROSPECTING SOIL SAMPLES: It proposed that Sample 10E41191 SM11FRAT be included in the proposed SILVERMINNOW2 SOIL GRID which was started at the end of the 2011 field season.

In 2011:

10E41191 SM11FRAT: Au 18.1 ppb, Ag 9.74 ppm, Cu 53.4 ppm, Pb 1835 ppm, Zn 2730 ppm.
(south boundary DL 4023 KDYD WHITE ROCK MC just west and down hill from SILVER MINNOW.)
10E41193 SM11FR10T: Au 6.1 ppb, Cu 174 ppm, Pb 30.2 ppm, Zn 427 ppm
14E41194 SM11T8: Cu 124 ppm, Fe 5.99 %, Pb 30.3 ppm.
14E41190 SM11FR5T: Cu 37.1 ppm, Pb 169 ppm.

Miscellaneous Soil Samples for consideration:
10E41053 BR16T3:
Au 6.7 ppb; Ag 0.54 ppm; Bi 0.52 ppm; Co 34.9 ppm; Fe 4.88 %; Ni 72.2 ppm; Pb 39.9 ppm; Zn 153 ppm
10E41051 BR16T1:
Au 6.5 ppb; Bi 0.44 ppm; Co 44 ppm; Cr 92 ppm; Cu 102.5 ppm; Fe 7.43 precent; Mg 1.34 %; Mo 1.54 ppm; Ni 146.5 ppm; Pb 36.6 ppm; Zn 108 ppm
10E41062 SM16T1: Al 2.64 %; Ca 6.26 %; Pb 57.7 ppm; Sb 2.46 ppm; Zn 146 ppm.
10E41054 BR16T4: Bi 0.57 ppm; Fe 4.43 %; Pb 31.9 ppm; W 12.25 ppm.

STREAM SEDIMENT AND MOSS MAT SAMPLES:

In 2011, Moss Mat and paired Stream Sediment Samples:
10E41186 SM11MM1: Ag 0.35 ppm; **10E41188 SM11SS1: Ag 0.75 ppm**, Cu 26.1 ppm.
10E41187 SM11MM2: Cu 29 ppm, Pb 16.8 ppm; 10E41189 SM11SS2: Cu 21.8 ppm, Pb 24.8 ppm.

In 2016, 10E41063 BR16MM1:
Ag 0.32 ppm; As 15.6 ppm; Hg 0.22 ppm; Mn 14,700 ppm; Mo 2.53 ppm; Ni 26.4 ppm; Sb 0.33 ppm.

MISCELLANEOUS ROCK SAMPLES:

- **10E41016 SM11R999: Au 29.2 ppb, Ag 50.4 ppm, Cu 1475 ppm, Pb 1275 ppm, Sb 533 ppm, Zn 2990 ppm.** Limestone quartz breccia with malachite in outcrop; possibly a new mineralized zone.
- Limestone quartz stockwork/veins.
  10E41021 SM11CHR1: Ag 12.8 ppm, Pb 1.16 %, Zn 1880 ppm (channel).
  10E41023 SM11CHR1-3: Ag 1.89 ppm, Pb 1910 ppm, Zn 2510 ppm (channel).
- **10E41198 SM11FRA (float rock): Ag 10.55 ppm, Cu 185.5 ppm, Pb 6510 ppm, Zn 839 ppm.**
- 10E41634 BR11FR59 (float rock): Al 1.7 %, Co 117 ppm, Cr 1152 ppm, Fe >10 %, Mg 6.49 %, Ni 1027 ppm.

4. GEOPHYSICS AND GEOCHEMICAL SURVEYS (ARIS 33190, 33744):

An airborne geological survey was completed by Fugro Airborne Surveys Corp titled ***Logistics and Processing Report: Helicopter-borne HELITEM Time Domain Electromagnetic and Magnetic Geophysical Survey – Project No. 11089*** dated January 23, 2012. The purpose of the survey was to determine the existence and locations of bedrock conductors and for better understanding of subsurface geology within the survey areas. The EM data and the magnetic data were processed to produce images and profiles that are indicative of the magnetic and conductive properties of the survey area. A GPS navigation system ensured accurate positioning of geophysical data.

In February 2016, a follow-up interpretations report was completed. In general terms, ***"Magnetic and EM Interpretation Airborne Magnetic and HeliTEM Survey BARRIERE RIDGE and HONEYMOON Blocks British Columbia - Job No. 12578"*** reported priority targets and significant results as follows:

- Significant conductors were identified within the survey area and they were outlined on interpretation maps. Conductors were classified as conductive zones, points, and axes. A list of anomalous EM responses, for detailed review and ground follow-up were provided Fugro.
- The magnetic grid showed a magnetic low, with a gently rippling character in the western portion of the block, and a more complex and highly magnetic area to the centre and northeast. High conductivities exist in both the east and west with a low conductivity area running nearly N-S through the mid-western portion of the block, and along the north in the eastern portion of the block. There is a low conductivity area in the southeast.
- Conductivity depth (CDI) sections identified major faults and in many cases these had been identified from the magnetic signatures. Conductivity depth identified some new faults. The dips of the faults can also be identified using CDI sections.

Geophysical Anomaly List: A list of geophysical anomalies was provided by Fugro including GPS coordinates and a key map. These geophysical anomalies require further interpretation through field checks and ground geophysics.

Based on the above geophysical surveys and various geochemical anomalies, there is a need to compare, contrast, field check, and interpret the results of the Fugro airborne geophysics surveys using a spatial GIS database with the following data included:

- Anomalous rock, soil, and stream sediment assay results from ARIS 32383, 33190, 33744, 35500.
- Historical data from old ARIS reports
- Historical data collected by David Piggin for a Prospector Assistance Grant #98/99 P94 (1998-43).
- Existing geological mapping.
- Existing fault and structural information.

Outputs from this spatial information would be used to prioritize exploration areas for further targeting, prospecting, geochemical and ground geophysical surveys, trenching and drilling; and to provide a framework to field test various geophysical and structural anomalies identified by the Fugro airborne geophysical surveys

5. MISCELLANEOUS:

A. Advanced Exploration Projects in the Vicinity of BARRIERE RIDGE.

The BARRIERE RIDGE claims are prospective for Ag Pb Zn (Au Cu) due to the many anomalies that have been discovered; the proximity to the contact between the SLIDE TERRANE, and KOOTENAY TERRANE; the presence of the massive Baldy Batholith Intrusion, and because of the many exploration and development projects in the near vicinity, for example the:

- HARPER CREEK deposit of Yellowhead Mining Inc (25 km to the north),
- CHU CHUA Deposit of Newport Exploration Ltd. (14 Km to the northwest),
- RUDDOCK CREEK deposit of Imperial Metals (80 Km to the northeast)
- Past production at the Samatosum Mountain, Rea, and Homestake Mines (16 km to the south).
- Many MINFILE occurrences immediately adjacent to the BARRIERE RIDGE claims and south of the Mid-Cretacious Bald Batholith intrusive.

B. **<u>British Columbia Geological Survey (BCGS) and Regional Geologist</u>**: Open File reports (e.g. Open File 1997-9; Regional Stream Sediment Surveys) are extremely useful for prospecting the Birk Creek, North Barriere River, East Barriere River, Russell Creek areas. There is a wealth of geological, mapping, geochemical, sampling, and exploration information in the till, stream chemistry, moss mat, stream sediment, and mapping data. The GeoFile 2005-4 download data set proved to be invaluable for spatial mapping purposes. It was noted that GeoFile 2005-4 needs to be updated with respect to new mapping available in Open File 2000-7. Personal communication with Jim Britton, Regional Geologist has proven invaluable for exploration.

C. **<u>Spatial Data</u>:** A digital database is being developed and continued for BARRIERE RIDGE. There is a need to bring all this data together into a spatial data base (i.e. ARCGIS, UDIG) to define possible exploration targets. Work was commenced by David Piggin and Dale Brittliffe on a spatial data base and will continue until all data sources are coalesced.

D. **<u>MINFILE 082M 069 SILVER MINNOW (aka SILVER MINERAL)</u>: Tenure 744542.** The GPS coordinates in the MINFILE database are incorrect. The correct GPS coordinates for 082M 069 are as follows: NAD 83 Zone 11: 297803.482E and 5686989.765N.

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Fugro Airborne Surveys, Jan 2012: Logistics and Processing Report: Helicopter-borne HELITEM Time Domain Electromagnetic and Magnetic Geophysical Survey - Project No. 11089 - for the HONEYMOON and BARRIERE RIDGE claims dated January 23, 2012. Prepared for Astral Mining Corporation, Vancouver, British Columbia and reported in ARIS 33190 Report dated July 18, 2012

Fugro Airborne Surveys, Feb 2016: Magnetic and EM Interpretation Airborne Magnetic and HeliTEM Survey BARRIERE RIDGE and HONEYMOON Blocks - Job No. 11089 - dated February 2016. Prepared for Astral Mining Corporation, Vancouver, British Columbia.

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AUTHORS QUALIFICATIONS

The author has been a prospector since 1997 and has the following qualifications:

- Registered Professional Forester (2412) since 1990. Retired in 2009 from the Ministry of Forests and Range, Southern Interior Forest Region with 35 years of meritorious service. Certified Incident Commander for forest fires in 2009.
- Past Director, Past Vice President, and member of the Kamloops Exploration Group (KEG).
- Member of AME BC; regularly attend Cordilleran Roundup (1998 to 2018) with Prospector Booth
- Attend the KEG (1997 to 2018) with Prospector Booth; Completed KEG Prospectors Course in 1997.
- Attended numerous KEG and Geoscience BC short courses or field trips for prospecting, geochemistry, (basic) geophysics, mineralization, ore bodies, and formations such as the Nicola Volcanics.
- Attended numerous KEG and Geoscience BC field trips to Afton (Abacus), New Gold Inc (underground), Gibraltar, Mount Polley, Highland Valley Copper, Samatosum, Copper Mountain, and etc.
- Conducted field tours of properties with company geologists, and government geologists.
- Completed Prospectors Assistance Grant #98/99 P94.
- Completed contract staking; and completed contracts on 80+ line kilometers of soil surveys for companies.
- Collected 3000+ of soil samples for assay by exploration companies.
- Collected 500+ prospecting soil samples; 400+ moss mats/stream sediments samples; and 400+ rock samples.
- First Nations Cultural Awareness Workshops, Project Management Courses, Continuous Improvement, Conflict Resolution, Coaching & Facilitating (meetings and teams), and business processes.
- First Nations consultation on mineral claims including information sharing, meetings, conflict resolution.
- Member of Provincial Working Groups related to government initiatives.
- Budgeted and implemented up to $ 1.1 million per year of forestry related contracts.
- Contracted and supervised professionals and technicians working to a scientific standard.
- Completed Assessment Reports (ARIS) as follows:
  29378: SPAPILEM CREEK (aka HONEYMOON) - July 4, 2007; $ 6,375.11.
  29407: HONEYMOON CREEK (aka HONEYMOON)- November 18, 2007; $ 11,040.10.
  29709: CAMGLORIA (aka HONEYMOON) - December 20, 2007; $ 7,037.87.
  29960: HONEYMOON - March 1, 2008; $ 25,177.09.
  30869: HONEYMOON - June 2, 2009; $ 29,959.06.
  32076: HONEYMOON - for Astral Mining Corporation, June 7, 2011, $ 78,250.27;
  32383: BARRIERE RIDGE for Astral Mining Corporation, August 21, 2011; $ 21,824.78.
  33190: HONEYMOON and BARRIERE RIDGE for Astral Mining Corporation, July 18, 2012, $ 344,154.71.
  33744: HONEYMOON and BARRIERE RIDGE for Astral Mining Corporation; March 27, 2016. $ 97,303.43.
  33202: SASKUM BEAR for David J. Piggin, August 11, 2012; $ 9,411.98.
  33216: BENDGOLD for David J. Piggin, August 28, 2012; $ 37,007.66.
  34324: BENDGOLD for David J. Piggin, December 12, 2016; $ 17,706.83.
  34651: David J. Piggin. March 18, 2014. BARRIERE RIDGE; $ 39,377.26.
  35500: David J. Piggin. August 29, 2016. BARRIERE RIDGE; $ 46,111.09.
  36263: David J. Piggin. November 14, 2017. BARRIERE RIDGE; $ 33,088.84.
  36564: David J. Piggin. January 30, 2017. WEST AFTON; $ 16,149.17
  36628: David J. Piggin. February 9, 2017. SPAPILEMGOLD; $ 1,900.00.
  36629: David J. Piggin. February 9, 2017. CAMGLORIA; $ 1,900.00.
  TBA : David J. Piggin. December 8, 2018. WEST AFTON – Tenure 1056644; $ 3,072.14.
  TBA : David J. Piggin. November 9, 2018. SPAPILEMGOLD - $ 4,729.51
  TBA : David J. Piggin. November 9, 2018. CAMGLORIA = $ 4,417.88
- Optioned/sold the MAGNUM CLAIMS (near Ajax Pit at Afton) to New Gold Inc, near Kamloops, British Columbia.
- Optioned the HONEYMOON CLAIMS to Acrex Ventures Ltd., Vancouver, British Columbia.
- Optioned the HONEYMOON CLAIMS to Astral Mining Corporation, Vancouver, British Columbia.
- Optioned the BARRIERE RIDGE CLAIMS to Astral Mining Corporation, Vancouver, British Columbia.
- Optioned/sold the HONEYMOON CLAIMS to SolidusGold Inc,Vancouver, British Columbia.
- Optioned BARRIERE RIDGE Claims to Mantra Resources Ltd, Vancouver, British Columbia.

Software Programs Used In Support of this Report

The following computer software and equipment used in support of the exploration and development work, and in the preparation of this report.

1. Microsoft Office 2010: EXCEL, WORD, OUTLOOK, ACCESS.
2. Internet Explorer (version 10).
3. Mineral Tenures Online mapping software.
4. ARIS MapBuilder, Exploration Assistant.
5. MINFILE, Ministry of Energy and Mines BC Geological Survey – Open Files and related publications.
6. Geoscience BC – Open Files and related publications.
7. COZY Microscope App for cellphones.
8. Tasco digital microscope and software.
9. UDIG spatial software.
10. Arcview 3.2a.
11. Google Earth Pro.
12. Adobe Acrobat 9 Pro and Adobe Acrobat Distiller.
13. Trackmaker version 16.1 (freeware) for GPS download.
14. DNR Garmin GPS download.
15. Garmin 12XL – Global Positioning Unit.
16. Garmin GPSmap 60CSx – Global Positioning Unit.
17. Canon A630 and A1100 digital camera, Samsung cellphone with digital camera and microscope app.
18. ICOM road radio and hand held radio for safety.
19. Stone Blaze, belt chain, surveying tool.
20. Hand held Ranger Silva Compass, Azimuth.
21. Clinometer, Sunnto, (degrees, %).
22. Iwamoto Hand lens.
23. Survey ribbon (various colours), metal tags, and tyvek tags with wire.
24. Rock hammer, geotul, and various sledge hammers, shovels, soil auger, and trowels.
25. Gold pan, black, for collecting sediment samples prior to bagging.
26. Black plastic door screen (0.1 inch square mesh) for screening stream sediment samples.
27. Samples were collected with plastic bags (rock), stream sediments/soil (kraft bags), moss mats (linen bags).
28. 2 Trapper Nelson pack boards with sacks.
29. Ford, F150 4x4 pickup, with canopy/boat racks.
30. Shindawa powersaw, Husqvarna 55 Chainsaw, Poulan 4218 chainsaw.
31. 1 hand tank pumps (fire), fire extinguishers, shovels, pulaskis for fire prevention.
32. First aid kit for safety, and bear spray.

COST SUMMARY

BARRIERE RIDGE: COST SUMMARY

Event	Dates	Total Value of Work	PAC	Total Applied Work Value	
5722846	December 13, 2017	$ 12,644.55	$ 11.22	$ 12,633.33	
Exploration Work type	**Comment**	**Days**			**Totals**
Personnel (Name)* / Position	**Field Days (list actual days)**	**Days**	**Rate**	**Subtotal***	
David Piggin, RPF, Prospector	August 16, 2018	1	$400.00	$400.00	
David Piggin, RPF, Prospector	August 17, 2018	1	$400.00	$400.00	
Judy Burr, Prospector	August 17, 2018	1	$400.00	$400.00	
David Piggin, RPF, Prospector	August 20, 2018	1	$400.00	$400.00	
Judy Burr, Prospector	August 20, 2018	1	$400.00	$400.00	
David Piggin, RPF, Prospector	September 13, 2018	1	$400.00	$400.00	
David Piggin, RPF, Prospector	September 14, 2018	1	$400.00	$400.00	
Judy Burr, Prospector	September 14, 2018	1	$400.00	$400.00	
David Piggin, RPF, Prospector	September 15, 2018	1	$400.00	$400.00	
Judy Burr, Prospector	September 15, 2018	1	$400.00	$400.00	
David Piggin, RPF, Prospector	September 16, 2018	1	$400.00	$400.00	
Judy Burr, Prospector	September 16, 2018	1	$400.00	$400.00	
				$4,800.00	**$4,800.00**
Office Studies	**List Personnel (note - Office only, do not include field days**				
Literature search	David Piggin, RPF. Prospector	1.0	$400.00	$400.00	
Database compilation	David Piggin, RPF. Prospector	1.0	$400.00	$400.00	
Computer modelling			$0.00	$0.00	
Reprocessing of data			$0.00	$0.00	
General research	David Piggin, RPF. Prospector	2.75	$400.00	$1100.00	
General research					
Report preparation	David Piggin, RPF. Prospector	2.5	$400.00	$1,000.00	
Other (specify):	David Piggin, RPF. Prospector	0.0	$400.00	$0.00	
Other (specify)	David Piggin, RPF. Prospector	0.0		$0.00	
Other (specify)		0.0		$0.00	
				$2,900.00	**$2,900.00**

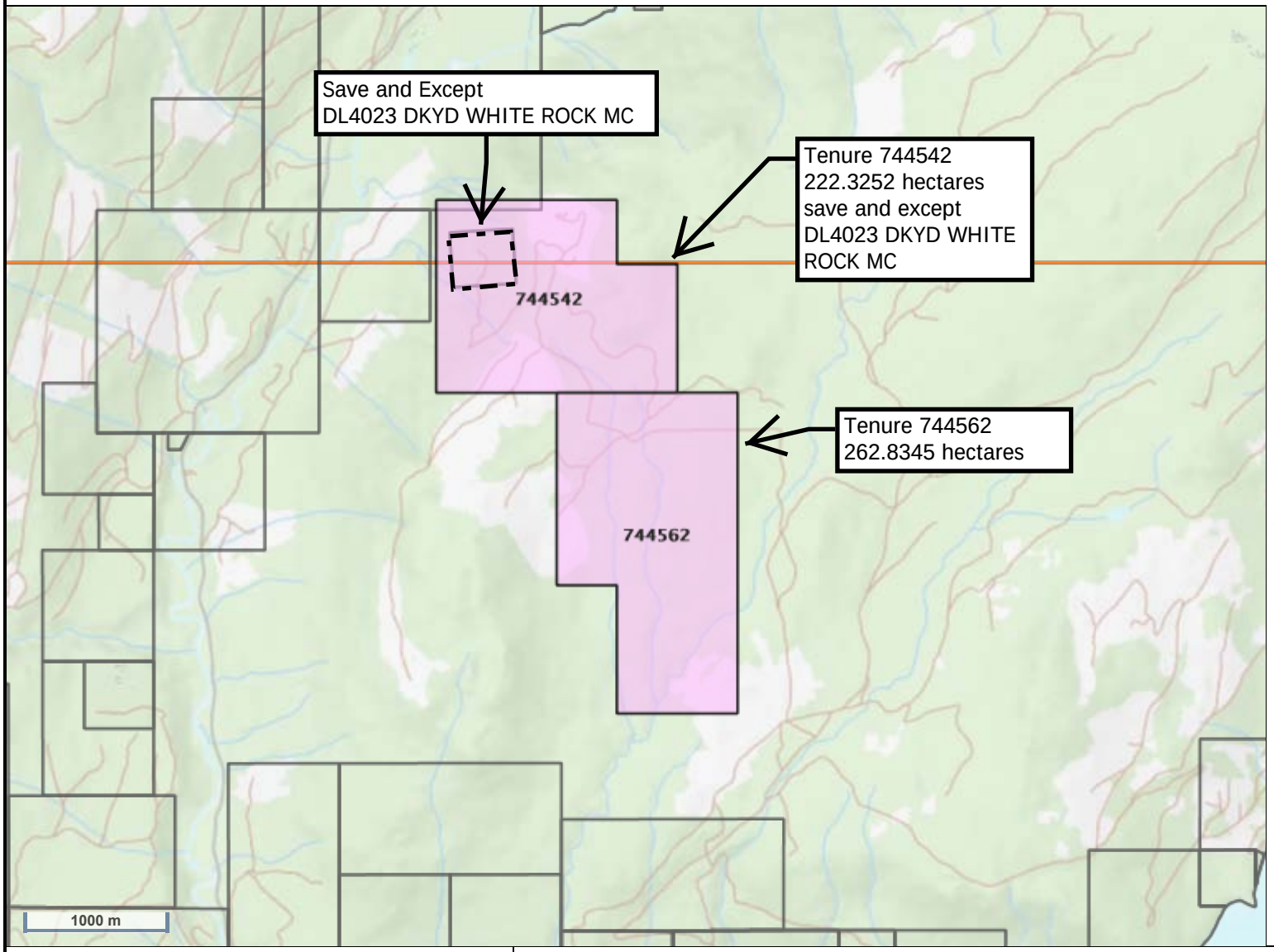
Airborne Exploration Surveys	**Line Kilometres / Enter total invoiced amount**				
Aeromagnetics			$0.00	$0.00	
Radiometrics			$0.00	$0.00	
Electromagnetics			$0.00	$0.00	
Gravity			$0.00	$0.00	
Digital terrain modelling			$0.00	$0.00	
Other (specify)			$0.00	$0.00	
				$0.00	**$0.00**
Remote Sensing	**Area in Hectares / Enter total invoiced amount or list personnel**				
Aerial photography			$0.00	$0.00	
LANDSAT			$0.00	$0.00	
Other (specify)				$0.00	
				$0.00	**$0.00**
Ground Exploration Surveys	**Area in Hectares/List Personnel**				
Geological mapping				$0.00	
Regional		*note: expenditures here*		$0.00	
Reconnaissance		*should be captured in Personnel*		$0.00	
Prospect		*field expenditures above*		$0.00	
Underground	Define by length and width			$0.00	
Trenches	Define by length and width			$0.00	
				$0.00	**$0.00**
Ground geophysics	**Line Kilometres / Enter total amount invoiced list personnel**				
Radiometrics				$0.00	
Magnetics				$0.00	
Gravity				$0.00	
Digital terrain modelling				$0.00	
Electromagnetics	*note: expenditures for your crew in the field*			$0.00	
SP/AP/EP	*should be captured above in Personnel*			$0.00	
IP	*field expenditures above*			$0.00	
AMT/CSAMT				$0.00	
Resistivity				$0.00	
Complex resistivity				$0.00	
Seismic reflection				$0.00	
Seismic refraction				$0.00	
Well logging	Define by total length			$0.00	
Geophysical interpretation				$0.00	
Petrophysics				$0.00	
Other (specify)				$0.00	
				$0.00	**$0.00**
Geochemical Surveying	**Number of Samples**	**No.**	**Rate**	**Subtotal**	
Drill (cuttings, core, etc.)			$0.00	$0.00	
Stream sediment			$0.00	$0.00	

Soil			$0.00	$0.00	
Soil			$0.00	$0.00	
Rock	10E41505_BR18R99A; 140E41506_BR18R7Q; 140E41507_BR18R10A; 140E41508_BR18R9; 140E41509_BR18R9A; 140E41510_BR18R9B	6.0	$69.93	$419.55	
Rock			$0.00	$0.00	
Water			$0.00	$0.00	
Biogeochemistry			$0.00	$0.00	
Whole rock			$0.00	$0.00	
Petrology			$0.00	$0.00	
Other (specify)			$0.00	$0.00	
				$419.55	**$419.55**
Drilling	**No. of Holes, Size of Core a**	**No.**	**Rate**	**Subtotal**	
Diamond			$0.00	$0.00	
Reverse circulation (RC)			$0.00	$0.00	
Rotary air blast (RAB)			$0.00	$0.00	
Other (specify)			$0.00	$0.00	
				$0.00	**$0.00**
Other Operations	**Clarify**	**No.**	**Rate**	**Subtotal**	
Trenching			$0.00	$0.00	
Bulk sampling			$0.00	$0.00	
Underground development			$0.00	$0.00	
Other (specify)			$0.00	$0.00	
				$0.00	**$0.00**
Reclamation	**Clarify**	**No.**	**Rate**	**Subtotal**	
After drilling			$0.00	$0.00	
Monitoring			$0.00	$0.00	
Other (specify)			$0.00	$0.00	
				$0.00	**$0.00**
Transportation		**No.**	**Rate**	**Subtotal**	
Airfare			$0.00	$0.00	
Taxi			$0.00	$0.00	
truck rental		8.00	$95.00	$760.00	
kilometers		4,000.00	$0.55	$2,200.00	
ATV			$0.00	$0.00	

fuel			$0.00	$0.00	
Helicopter (hours)			$0.00	$0.00	
Fuel (litres/hour)			$0.00	$0.00	
Ferry		4.00	$57.50	$230.00	
Other					
				$3,190.00	**$3,190.00**
Accommodation & Food	**Rates per day**				
Hotel			$0.00	$0.00	
Hotel, D. Piggin at Brothers Place		6.00	$50.00	$300.00	
Camp			$0.00	$0.00	
Meals	day rate	12.00	$45.00	$540.00	
Meals	day rate or actual costs-specify			$0.00	
				$840.00	**$840.00**
Miscellaneous					
Telephone		0.00		$0.00	
Other (Specify)	Field Supplies	1.00	$50.00	$50.00	
Other (Specify)				$0.00	
				$50.00	**$50.00**
Equipment Rentals					
Field Gear (Specify)				$0.00	
Other (Specify)	Chainsaw Husky 55	6.00	$70.00	$420.00	
Other (Specify)	Chainsaw Shindaiwa	0.00	$0.00	$0.00	
				$420.00	**$420.00**
Freight, rock samples					
Deliver to ALS North Vancouver		1.0	$25.00	$25.00	
			$0.00	$0.00	
				$25.00	**$25.00**
TOTAL Expenditures					**$12,644.55**

APPENDICIES

BARRIERE RIDGE Claims



Legend

Mineral Titles (MTO)

Title (current)
- LEASE
- CLAIM

Reserves
- No Registration
- Conditional
- Heritage/Historic Site

Crown Land Layers (Tantalis)

Land Act Survey Parcels - Tantalis - Legal Descriptions
- Label Text

Land Act Survey Parcels - Tantalis - Outlined

Administrative Boundaries

Federal Transfer Lands - Outlined

Federal Transfer Lands - Colour Filled

National Parks - Outlined
- National Park

National Parks - Colour Filled

Conservancy Areas - Tantalis - Colour Filled
- Conservancy Areas

Ecological Reserves - Tantalis - Colour Filled
- Ecological Reserves

Protected Areas - Tantalis - Colour Filled
- Protected Areas

Provincial Parks - Tantalis - Colour Filled
- Provincial Parks

Recreation Areas - Tantalis - Colour Filled
- Recreation Areas

First Nations Layers

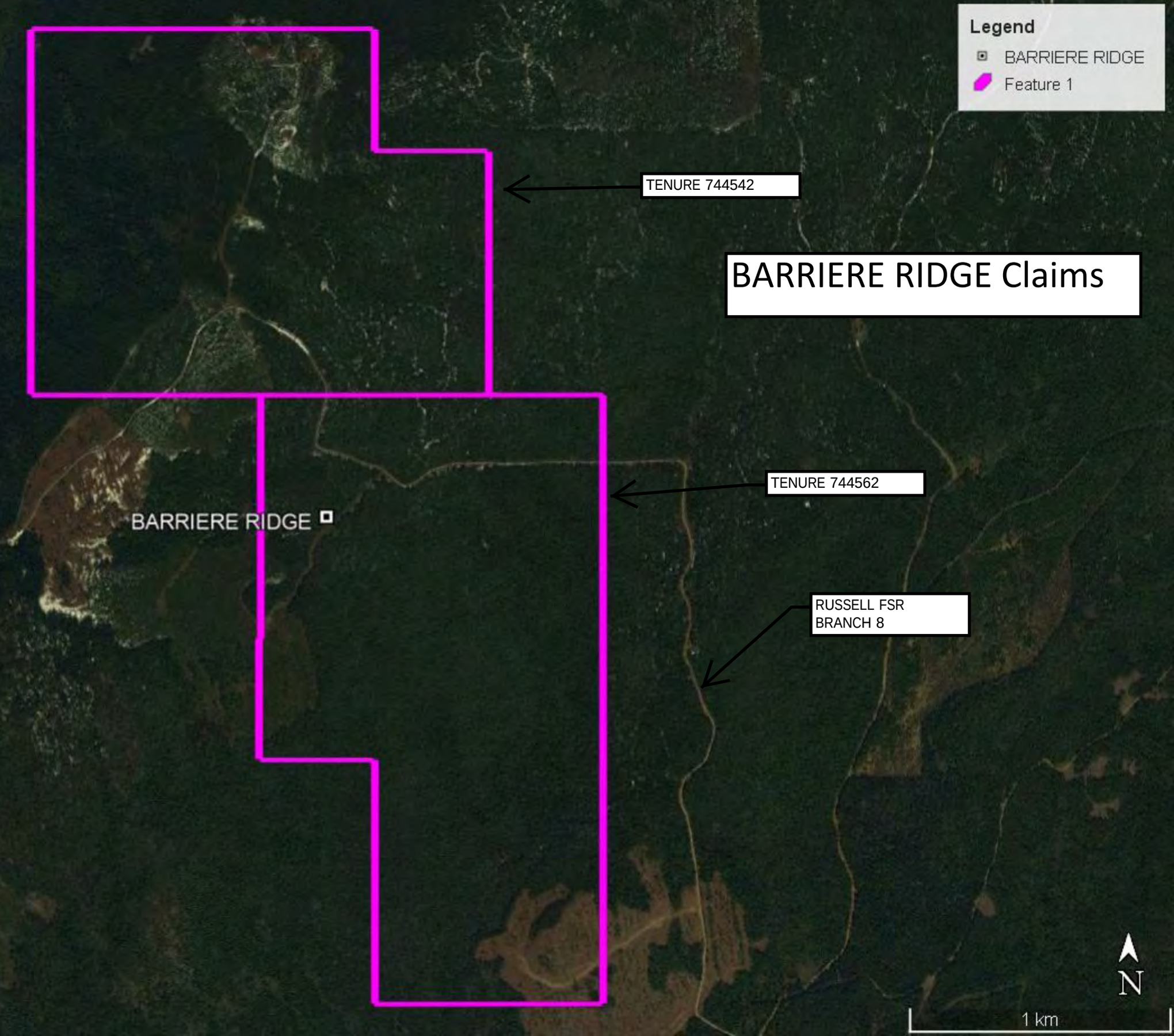
This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.
THIS MAP IS NOT TO BE USED FOR NAVIGATION.

New Boundary of the BARRIERE RIDGE Claims.

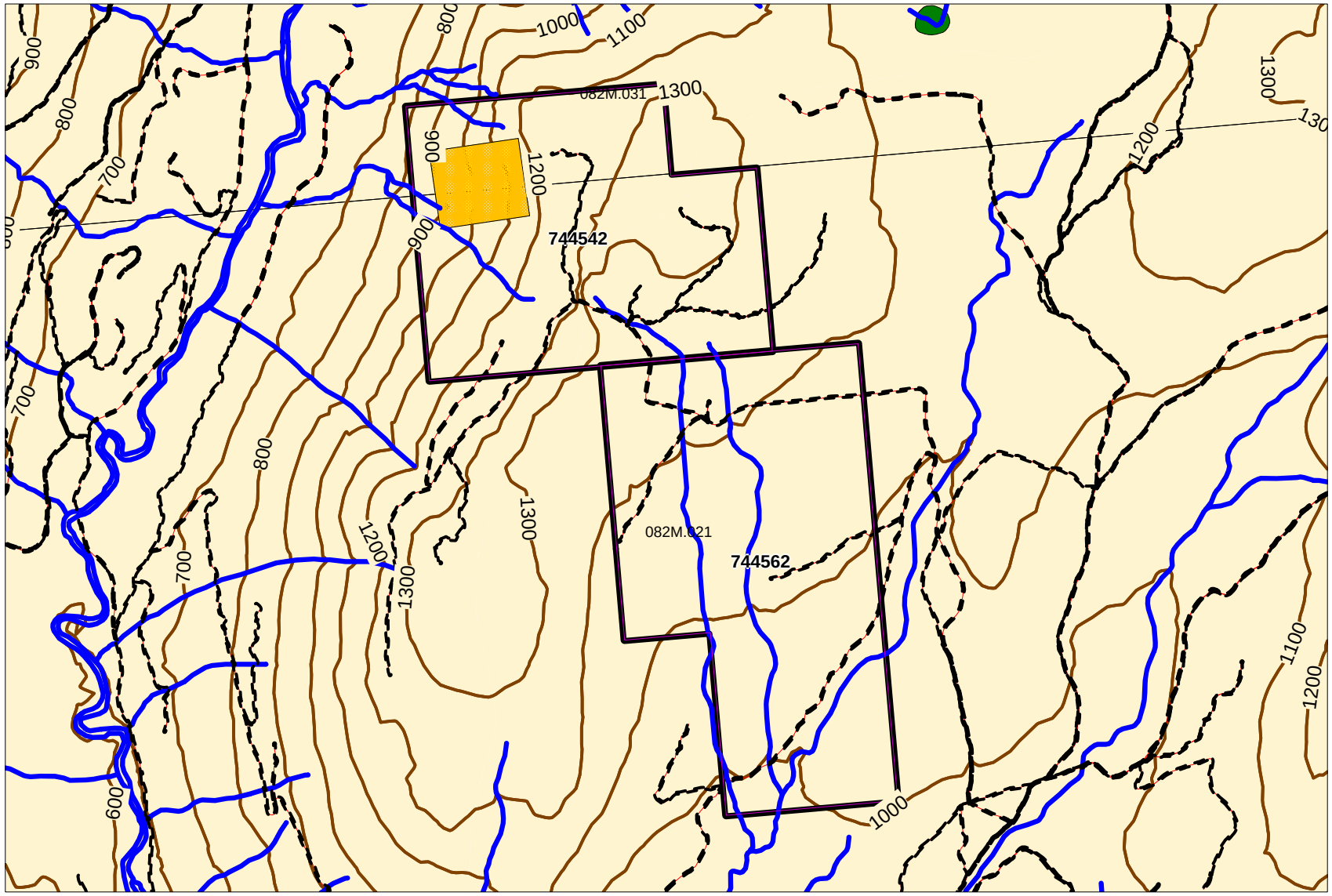
Total Area: 485.1597 hectares

Center: 51°17'11", -119°53'13"
Scale: 1 : 67710
SRS: EPSG:3857
UTM Zone: 11

N


Legend
BARRIERE RIDGE
Feature 1
TENURE 744542
BARRIERE RIDGE Claims
TENURE 744562
BARRIERE RIDGE
RUSSELL FSR
BRANCH 8
N
1 km

BARRIERE RIDGE CLAIMS



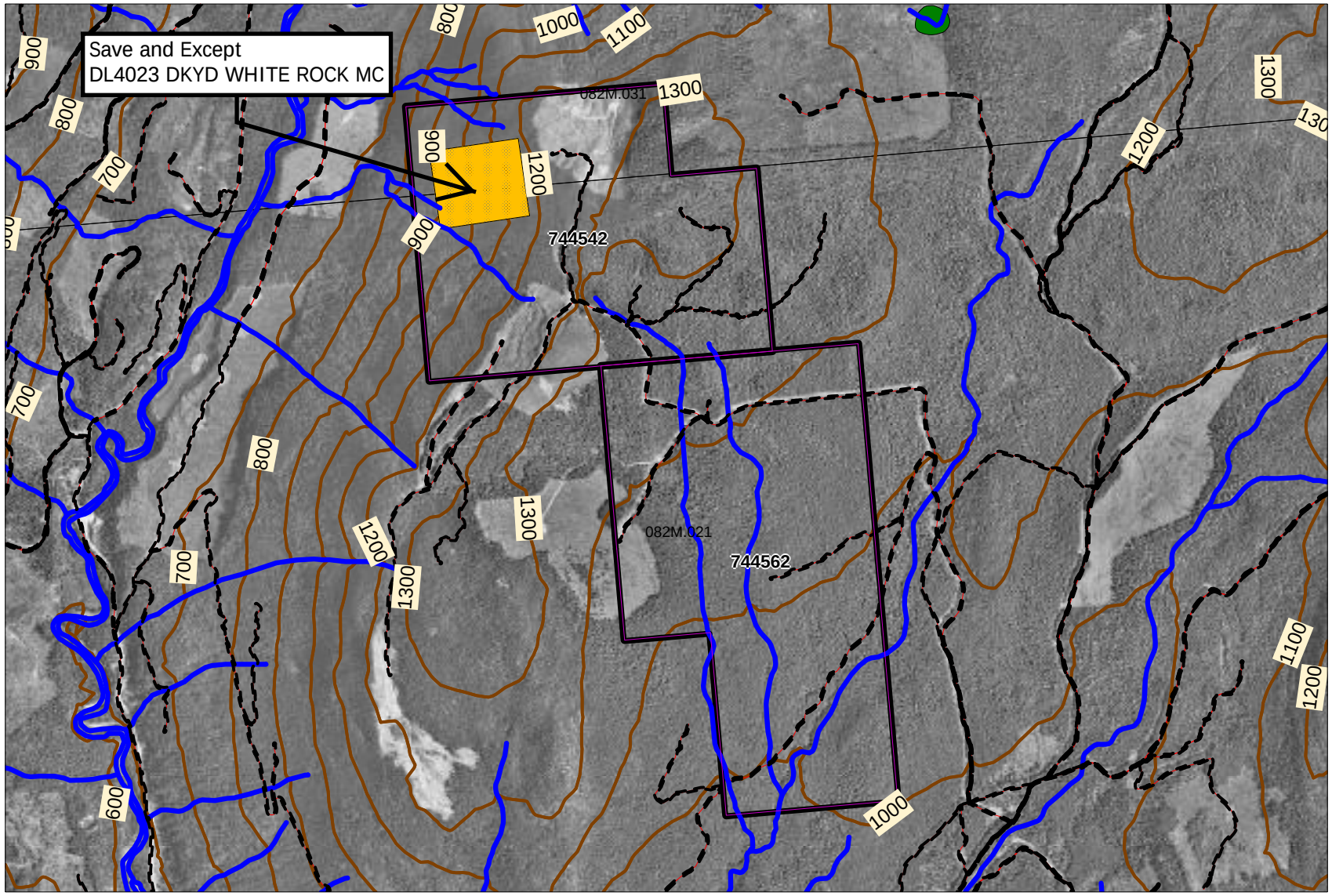
SCALE 1 : 30,000

2,000 0 2,000 4,000 6,000

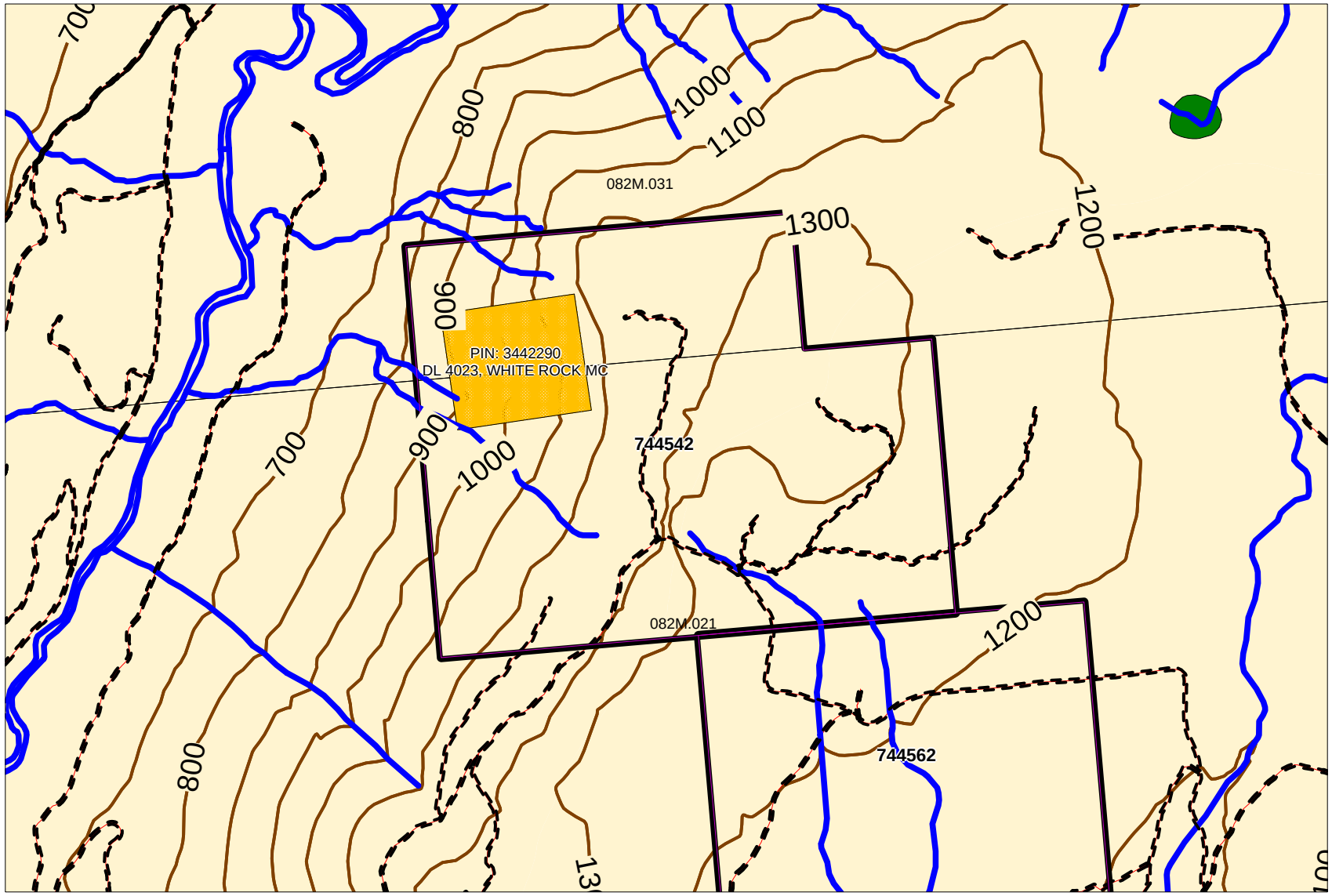
FEET

N

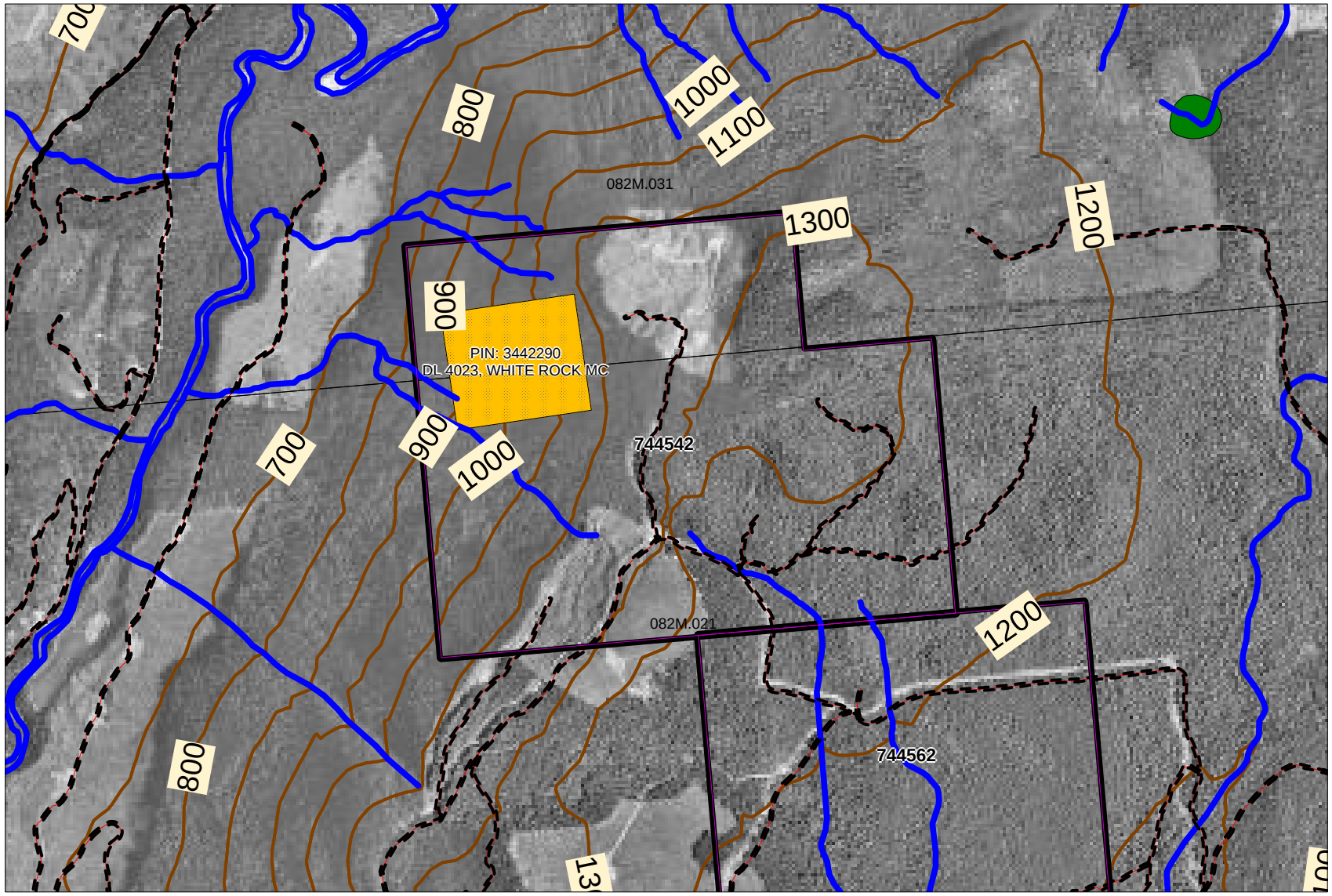
BARRIERE RIDGE CLAIMS



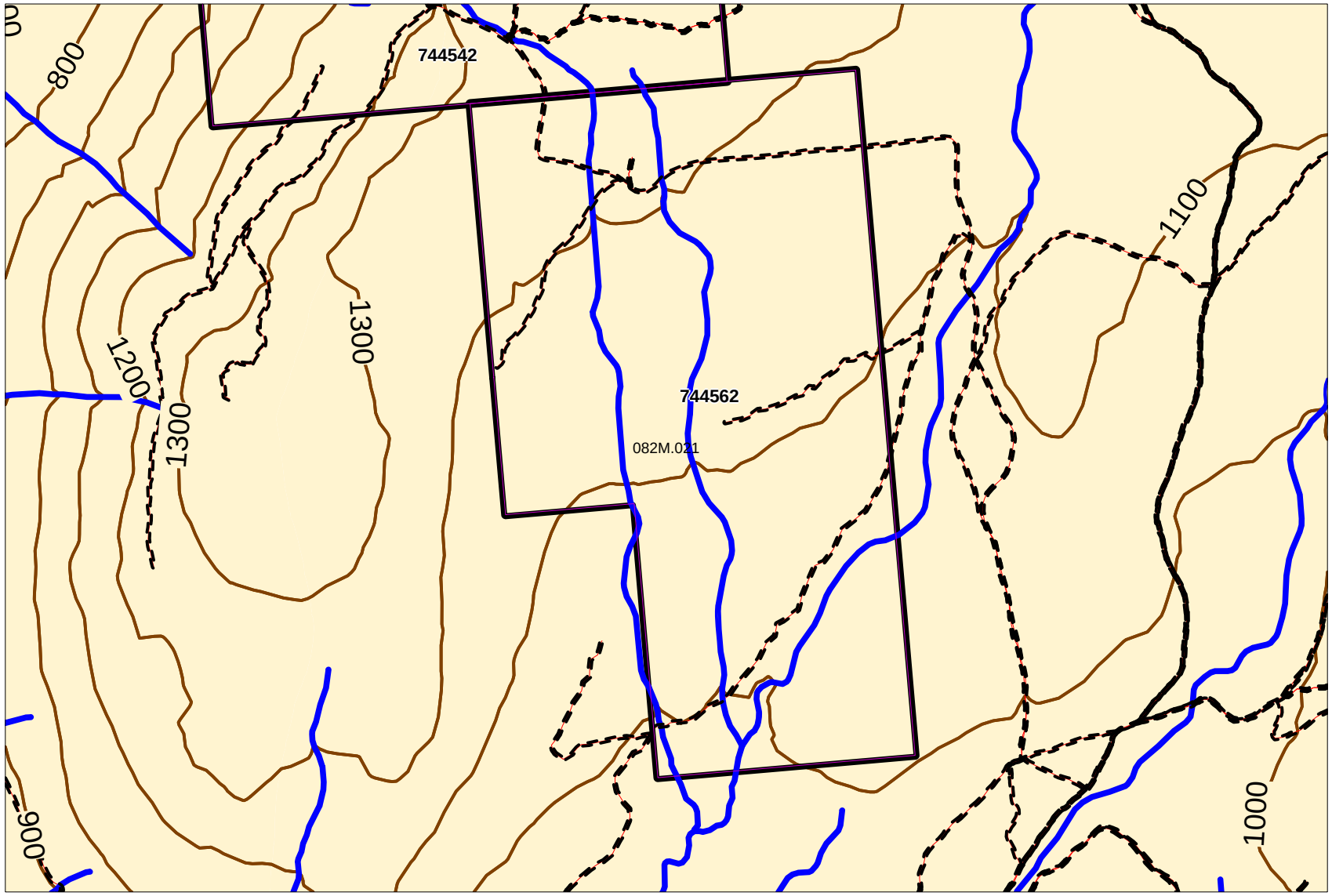
BARRIERE RIDGE CLAIMS: Tenure 744542



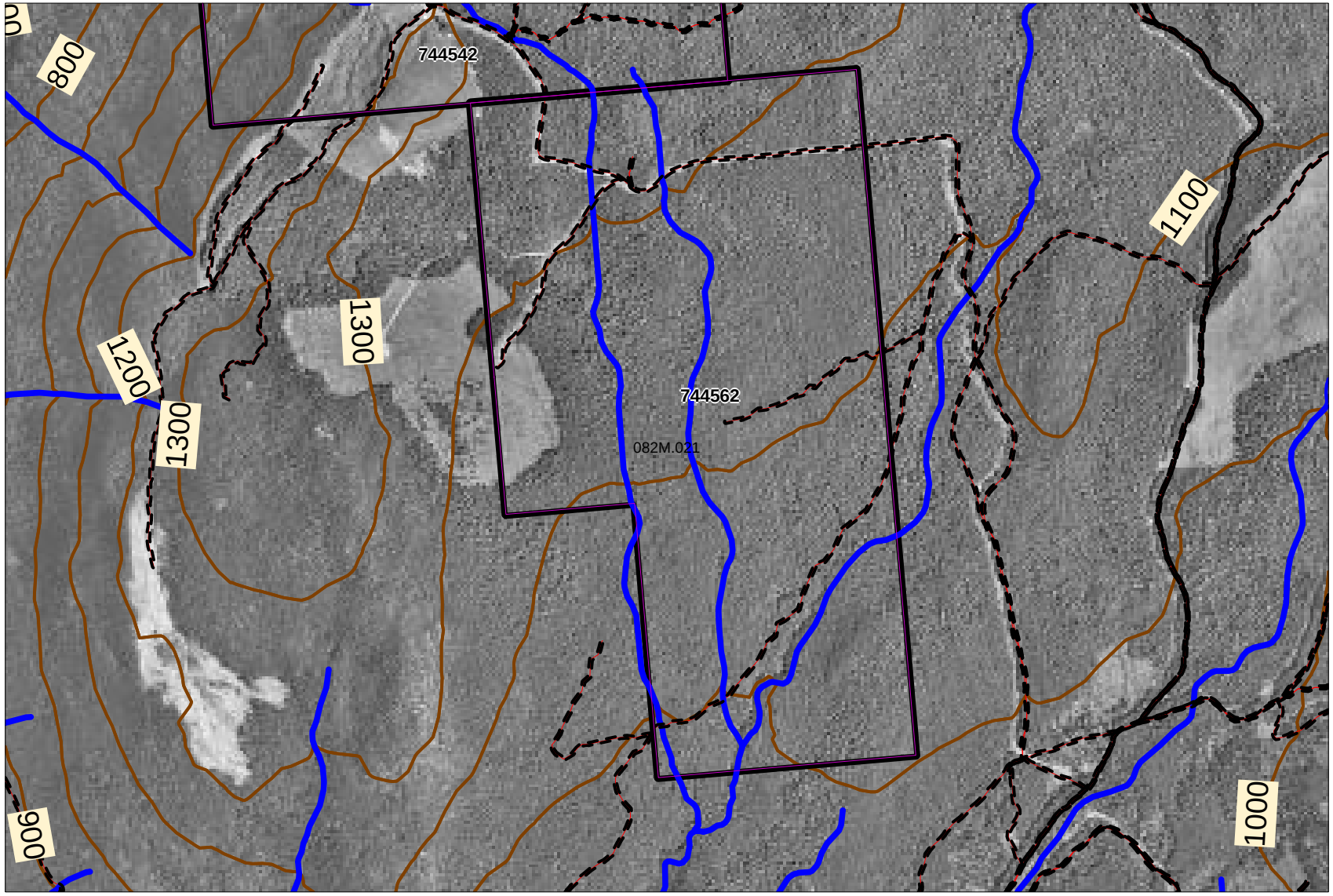
BARRIERE RIDGE CLAIMS: Tenure 744542



BARRIERE RIDGE CLAIMS: Tenure 744562



BARRIERE RIDGE CLAIMS: Tenure 744562

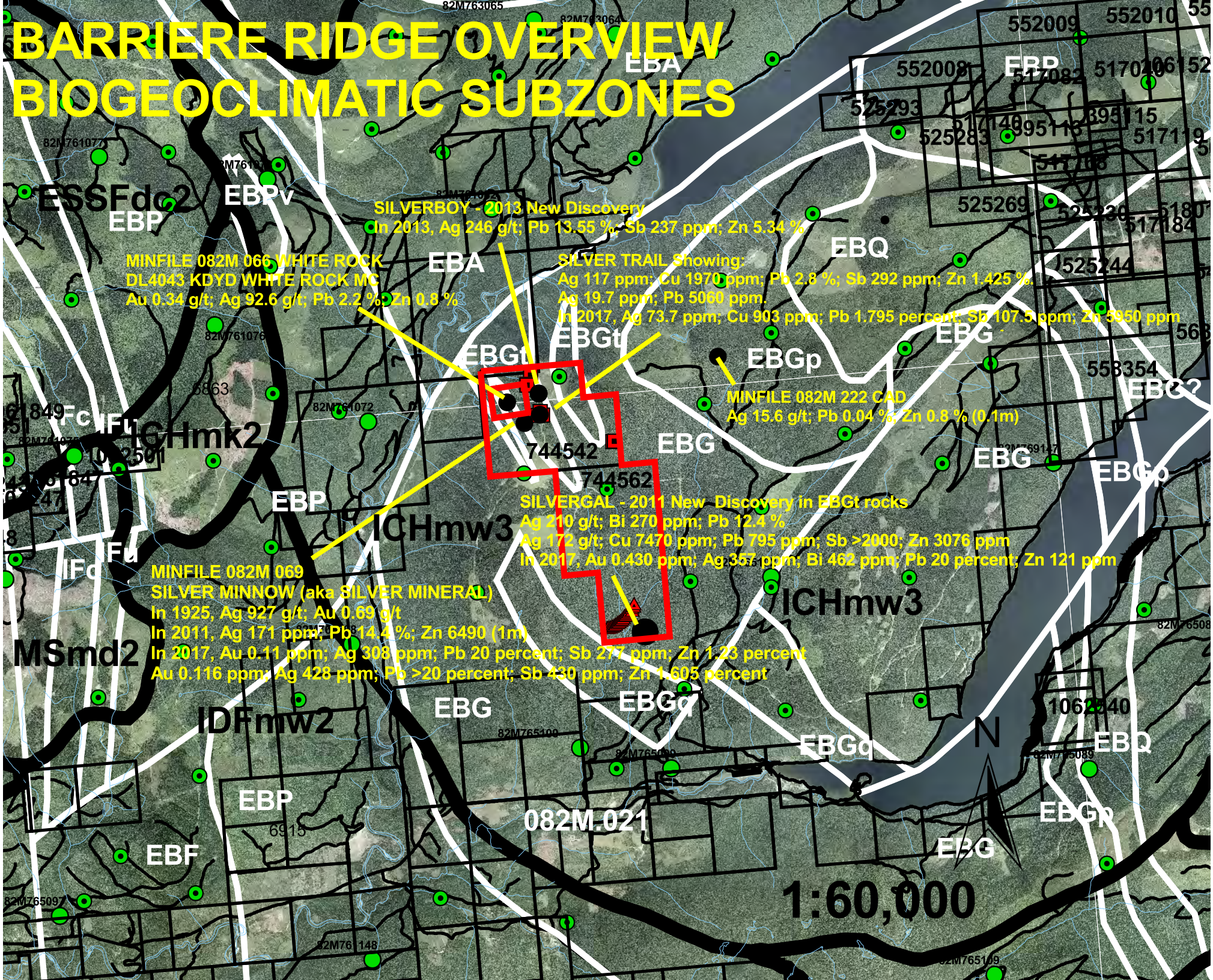


SCALE 1 : 20,000

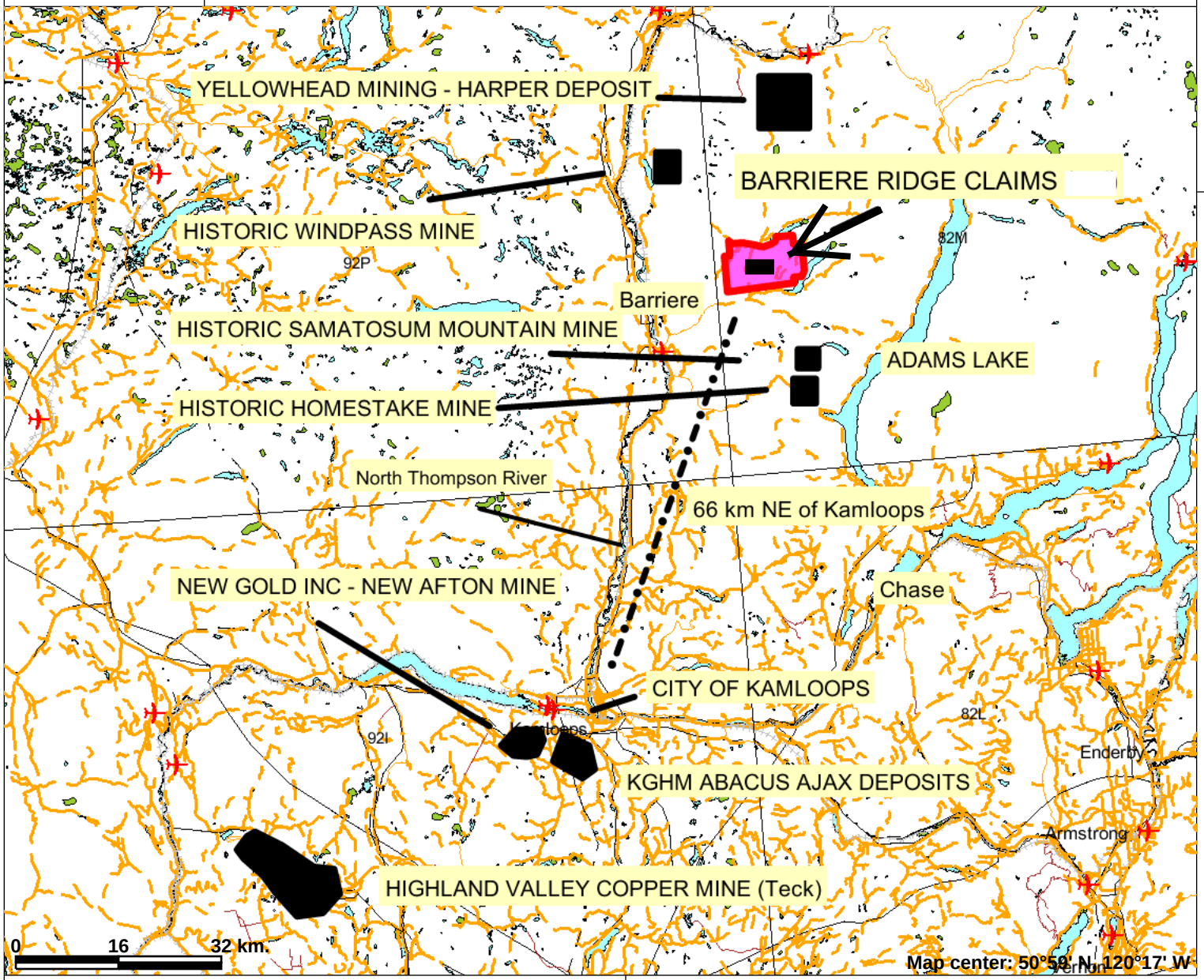
2,000 0 2,000 4,000 6,000

FEET

N


BARRIERE RIDGE OVERVIEW
BIOGEOCLIMATIC SUBZONES
SILVERBOY - 2013 New Discovery
In 2013, Ag 246 g/t; Pb 13.55 %; Sb 237 ppm; Zn 5.34 %
MINFILE 082M 066 WHITE ROCK
DL4043 KDYD WHITE ROCK MC
Au 0.34 g/t; Ag 92.6 g/t; Pb 2.2 %; Zn 0.8 %
SILVER TRAIL Showing:
Ag 117 ppm; Cu 1970 ppm; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %.
Ag 19.7 ppm; Pb 5060 ppm.
In 2017, Ag 73.7 ppm; Cu 903 ppm; Pb 1.795 percent; Sb 107.5 ppm; Zn 5950 ppm
MINFILE 082M 222 CAD
Ag 15.6 g/t; Pb 0.04 %; Zn 0.8 % (0.1m)
SILVERGAL - 2011 New Discovery in EBGt rocks
Ag 210 g/t; Bi 270 ppm; Pb 12.4 %
Ag 172 g/t; Cu 7470 ppm; Pb 795 ppm; Sb >2000; Zn 3076 ppm
In 2017, Au 0.430 ppm; Ag 357 ppm; Bi 462 ppm; Pb 20 percent; Zn 121 ppm
MINFILE 082M 069
SILVER MINNOW (aka SILVER MINERAL)
In 1925, Ag 927 g/t; Au 0.69 g/t
In 2011, Ag 171 ppm; Pb 14.4 %; Zn 6490 (1m)
In 2017, Au 0.11 ppm; Ag 308 ppm; Pb 20 percent; Sb 277 ppm; Zn 1.23 percent
Au 0.116 ppm; Ag 428 ppm; Pb >20 percent; Sb 430 ppm; Zn 1.605 percent
ESSFdc2
EBP
EBPv
EBA
EBQ
EBGt
EBGp
EBG
EBGq
EBGp
EBQ
EBF
ICHmk2
ICHmw3
IDFmw2
MSmd2
744542
744562
082M.021
1:60,000
N

BARRIERE RIDGE: Overview of Mines & Deposits

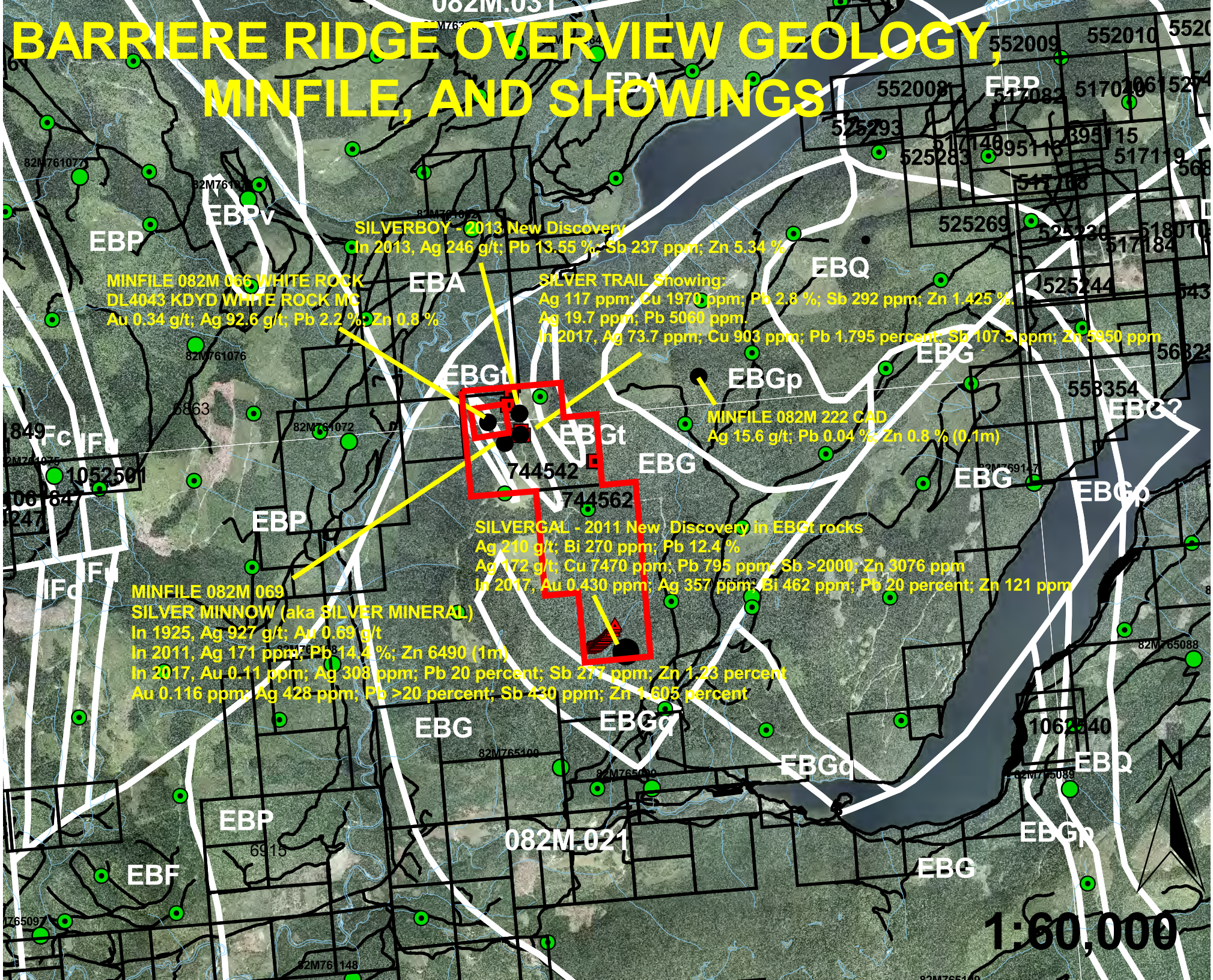


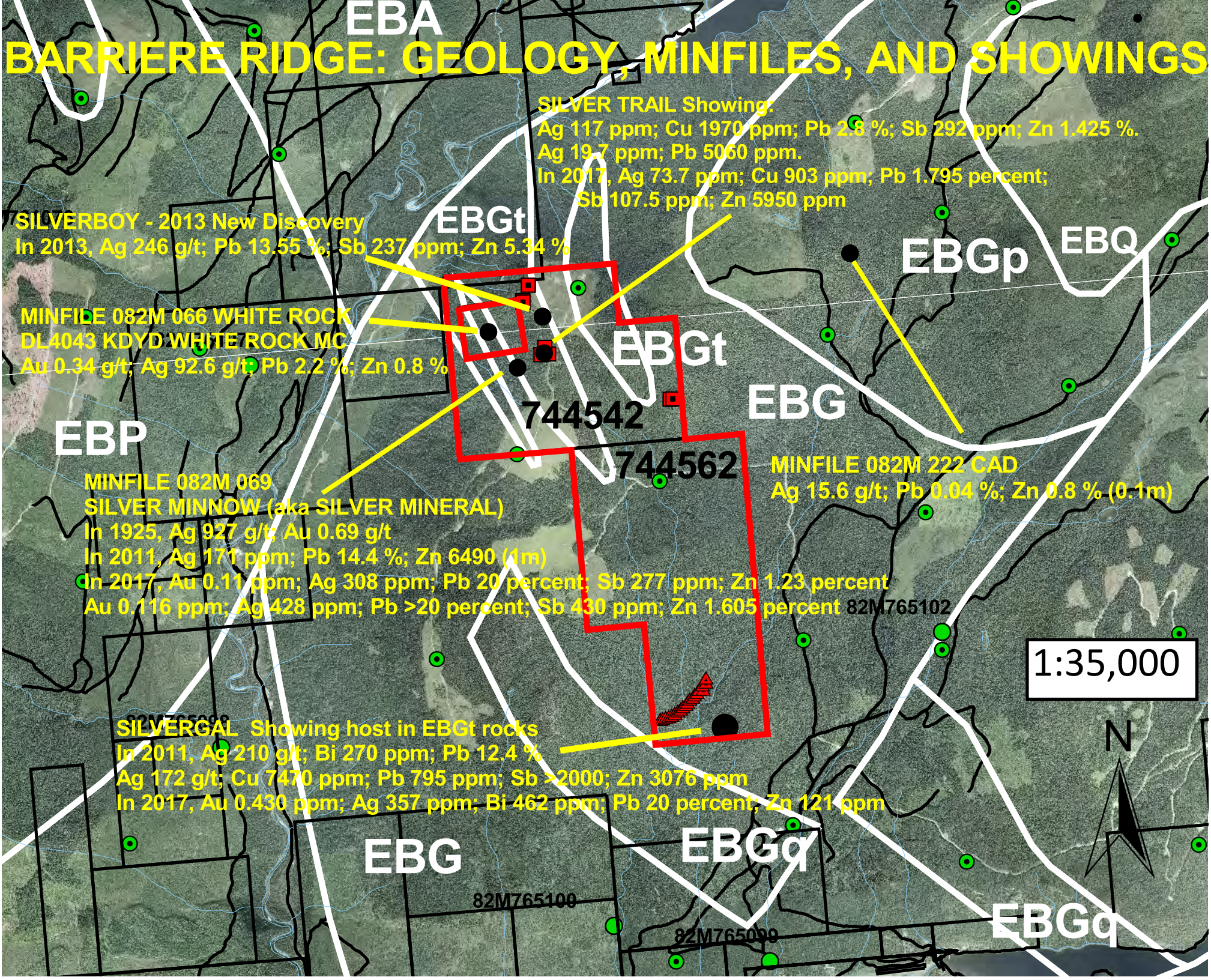
Legend

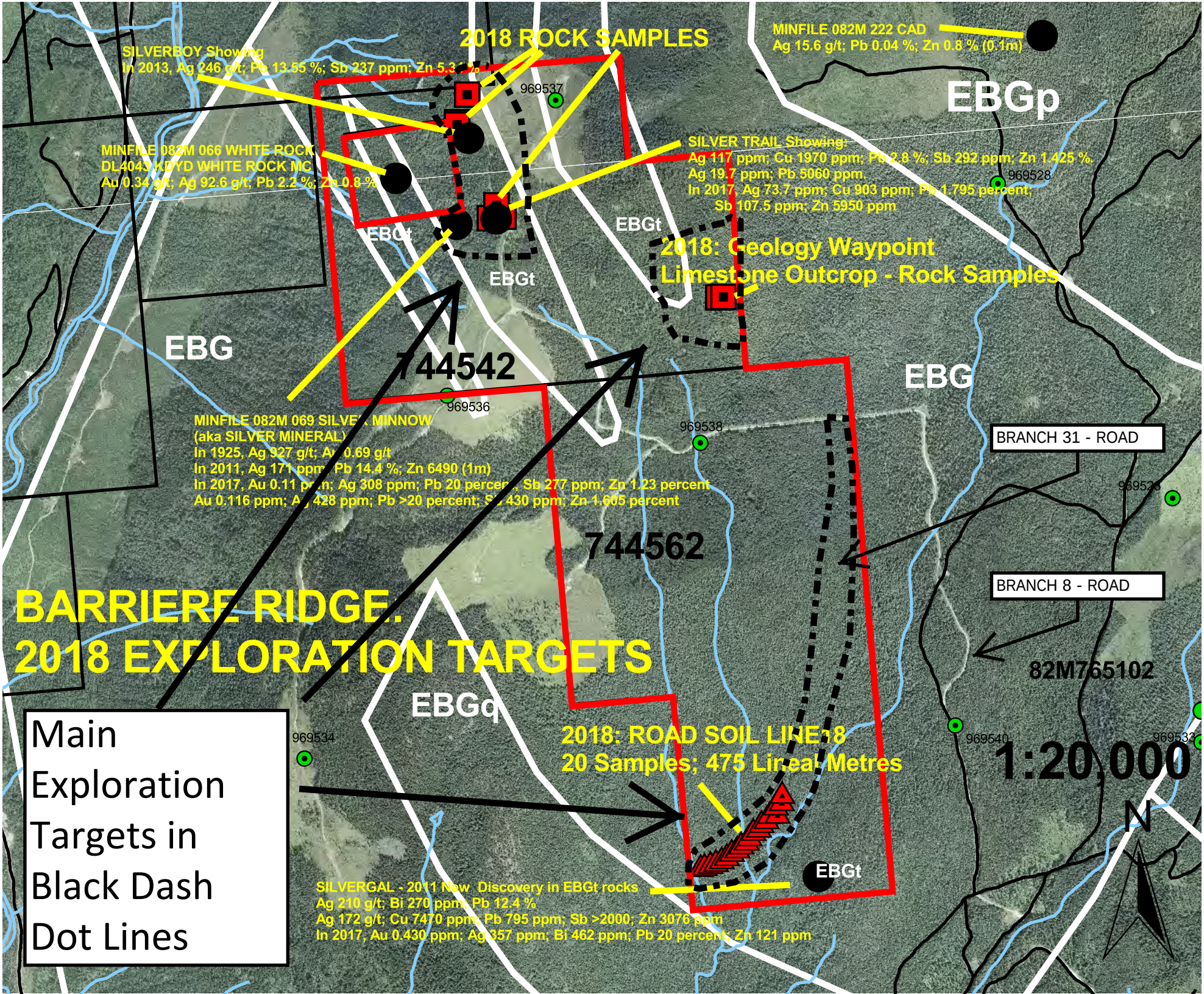
- NTS Grid
- Annotation (1:250K)
- Transportation - Points (1:250K)
  - Airfield
  - Anchorage - Seaplane
  - Ferry Route
  - Heliport
  - Seaplane Base
  - Air Field
  - Airport
  - Air Feature - Condition Unknown
  - Airport.Abandoned
- Transportation - Lines (1:250K)
  - Ferry Route
  - Aerial Cableway
  - Road (Gravel Undivided) - 1 Lane
  - Road (Gravel Undivided) - 3 Lanes
  - Road - Paved.lanes.2or More.Divided
  - Road (Paved Undivided) - Not Elevated - 1 Lane
  - Road (Paved Undivided) - Not Elevated - 2 Lanes
  - Road - Paved.lanes.3or More.Undivided
  - Road (Unimproved)
  - Road - Loose.access Dry Weather
  - Road (Winter Road)
  - Road - Paved.lanes.2.Undivided
  - Road - Paved.lanes.2.Undivided.U/C
  - Road - Paved.Divided.access.Non Standard
  - Track - Cart/Tractor
  - Causeway (Railway)
  - Cut (Roadway)
  - Trail
  - Tunnel
  - Bridge
  - Rail Line - Narrow Gauge - Single Track

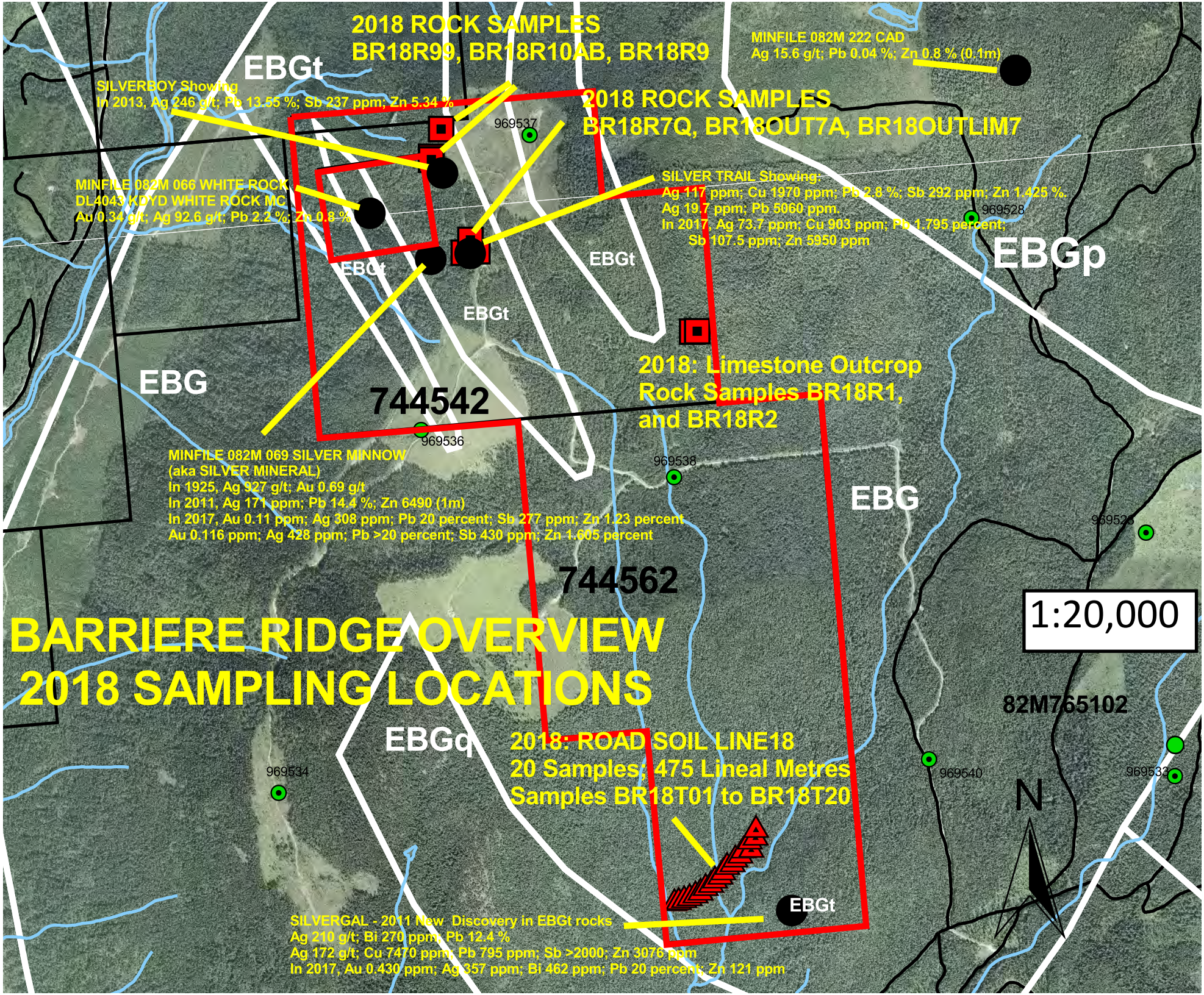
N

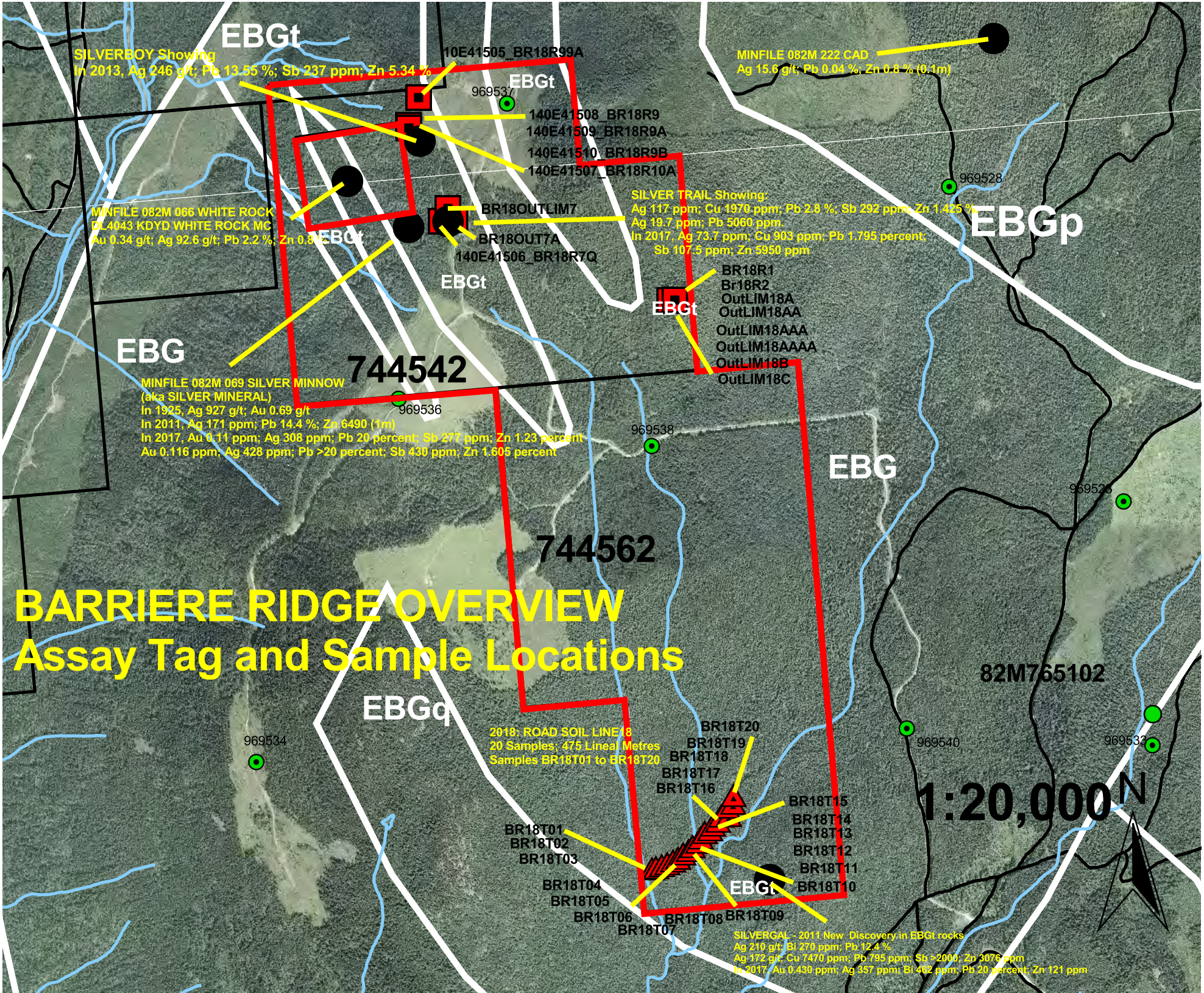
Scale: 1:929,947

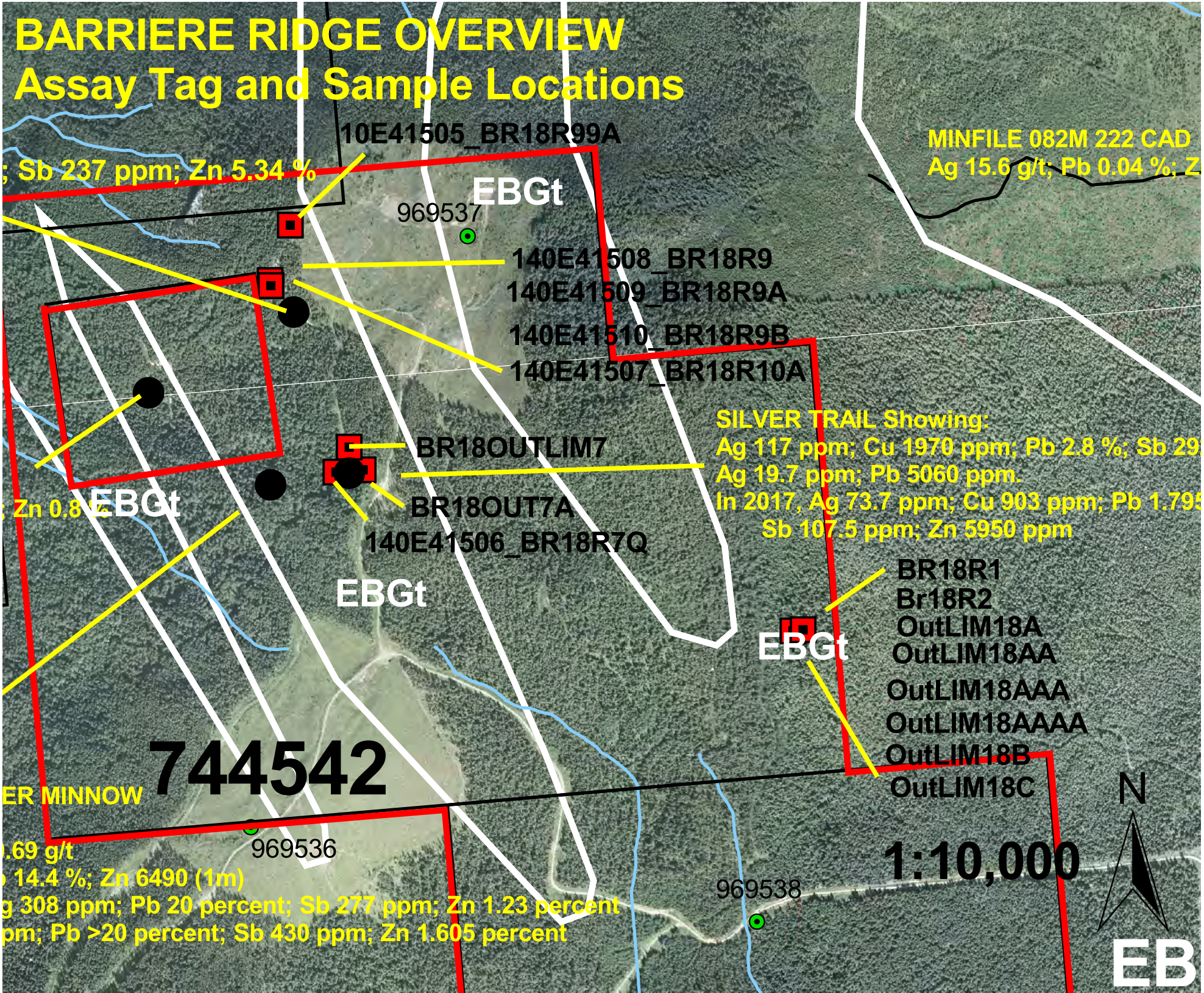

BARRIERE RIDGE OVERVIEW GEOLOGY, MINFILE, AND SHOWINGS
082M.031
EBA
EBP
EBPv
EBQ
EBG
EBGt
EBGp
EBGq
EBF
SILVERBOY - 2013 New Discovery
In 2013, Ag 246 g/t; Pb 13.55 %; Sb 237 ppm; Zn 5.34 %
MINFILE 082M 066 WHITE ROCK
DL4043 KDYD WHITE ROCK MC
Au 0.34 g/t; Ag 92.6 g/t; Pb 2.2 %; Zn 0.8 %
SILVER TRAIL Showing:
Ag 117 ppm; Cu 1970 ppm; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %.
Ag 19.7 ppm; Pb 5060 ppm.
In 2017, Ag 73.7 ppm; Cu 903 ppm; Pb 1.795 percent; Sb 107.5 ppm; Zn 5950 ppm
MINFILE 082M 222 CAD
Ag 15.6 g/t; Pb 0.04 %; Zn 0.8 % (0.1m)
SILVERGAL - 2011 New Discovery in EBGt rocks
Ag 210 g/t; Bi 270 ppm; Pb 12.4 %
Ag 172 g/t; Cu 7470 ppm; Pb 795 ppm; Sb >2000; Zn 3076 ppm
In 2017, Au 0.430 ppm; Ag 357 ppm; Bi 462 ppm; Pb 20 percent; Zn 121 ppm
MINFILE 082M 069
SILVER MINNOW (aka SILVER MINERAL)
In 1925, Ag 927 g/t; Au 0.69 g/t
In 2011, Ag 171 ppm; Pb 14.4 %; Zn 6490 (1m)
In 2017, Au 0.11 ppm; Ag 308 ppm; Pb 20 percent; Sb 277 ppm; Zn 1.23 percent
Au 0.116 ppm; Ag 428 ppm; Pb >20 percent; Sb 430 ppm; Zn 1.605 percent
744542
744562
082M.021
6915
6863
N
1:60,000

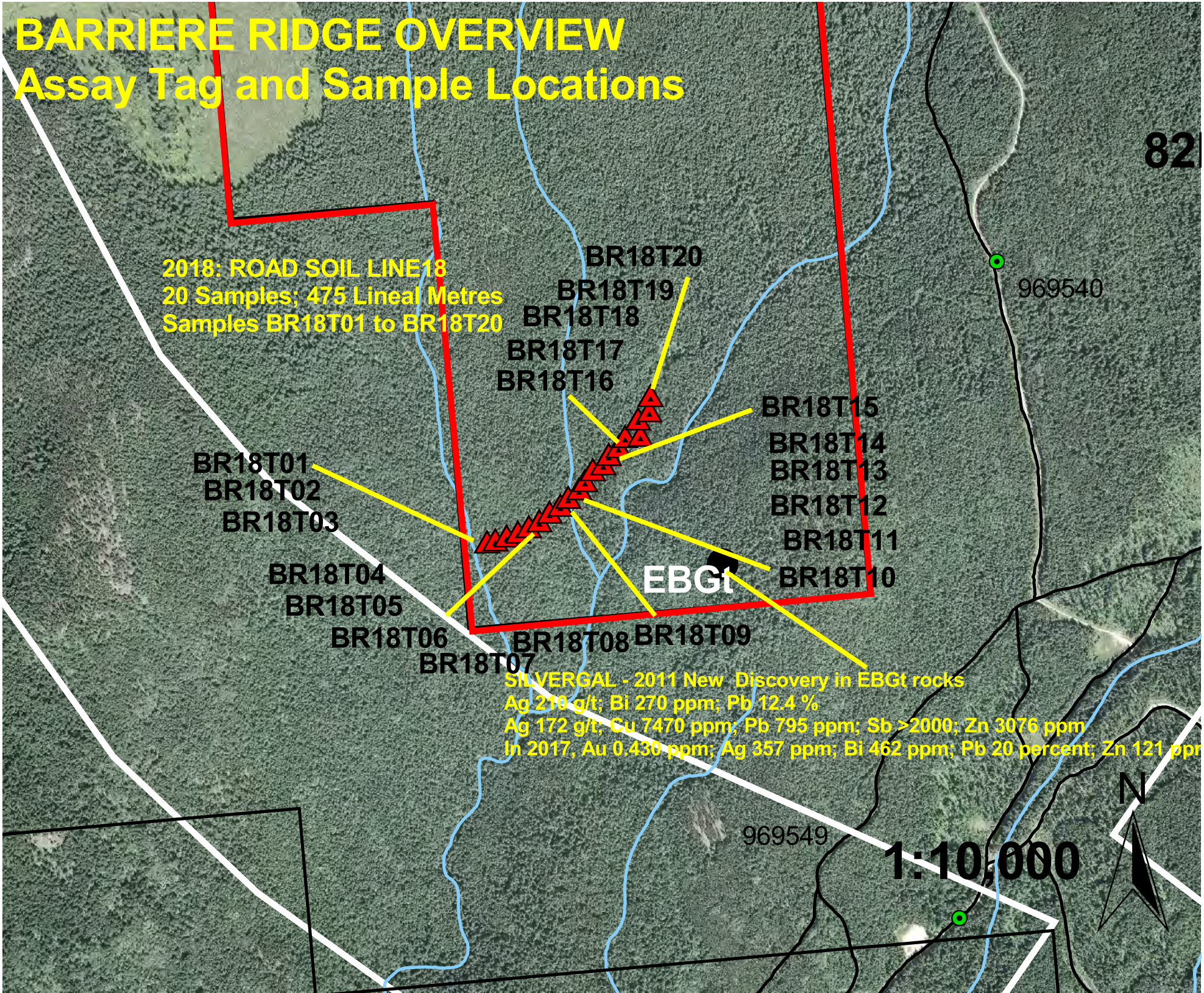

EBA
BARRIERE RIDGE: GEOLOGY, MINFILES, AND SHOWINGS
SILVER TRAIL Showing:
Ag 117 ppm; Cu 1970 ppm; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %.
Ag 19.7 ppm; Pb 5060 ppm.
In 2017, Ag 73.7 ppm; Cu 903 ppm; Pb 1.795 percent;
Sb 107.5 ppm; Zn 5950 ppm
SILVERBOY - 2013 New Discovery
In 2013, Ag 246 g/t; Pb 13.55 %; Sb 237 ppm; Zn 5.34 %
EBGt
EBGp
EBQ
MINFILE 082M 066 WHITE ROCK
DL4043 KDYD WHITE ROCK MC
Au 0.34 g/t; Ag 92.6 g/t; Pb 2.2 %; Zn 0.8 %
EBGt
EBG
744542
744562
EBP
MINFILE 082M 222 CAD
Ag 15.6 g/t; Pb 0.04 %; Zn 0.8 % (0.1m)
MINFILE 082M 069
SILVER MINNOW (aka SILVER MINERAL)
In 1925, Ag 927 g/t; Au 0.69 g/t
In 2011, Ag 171 ppm; Pb 14.4 %; Zn 6490 (1m)
In 2017, Au 0.11 ppm; Ag 308 ppm; Pb 20 percent; Sb 277 ppm; Zn 1.23 percent
Au 0.116 ppm; Ag 428 ppm; Pb >20 percent; Sb 430 ppm; Zn 1.605 percent
82M765102
1:35,000
SILVERGAL Showing host in EBGt rocks
In 2011, Ag 210 g/t; Bi 270 ppm; Pb 12.4 %
Ag 172 g/t; Cu 7470 ppm; Pb 795 ppm; Sb >2000; Zn 3076 ppm
In 2017, Au 0.430 ppm; Ag 357 ppm; Bi 462 ppm; Pb 20 percent; Zn 121 ppm
N
EBG
EBGq
82M765100
82M765099
EBGq

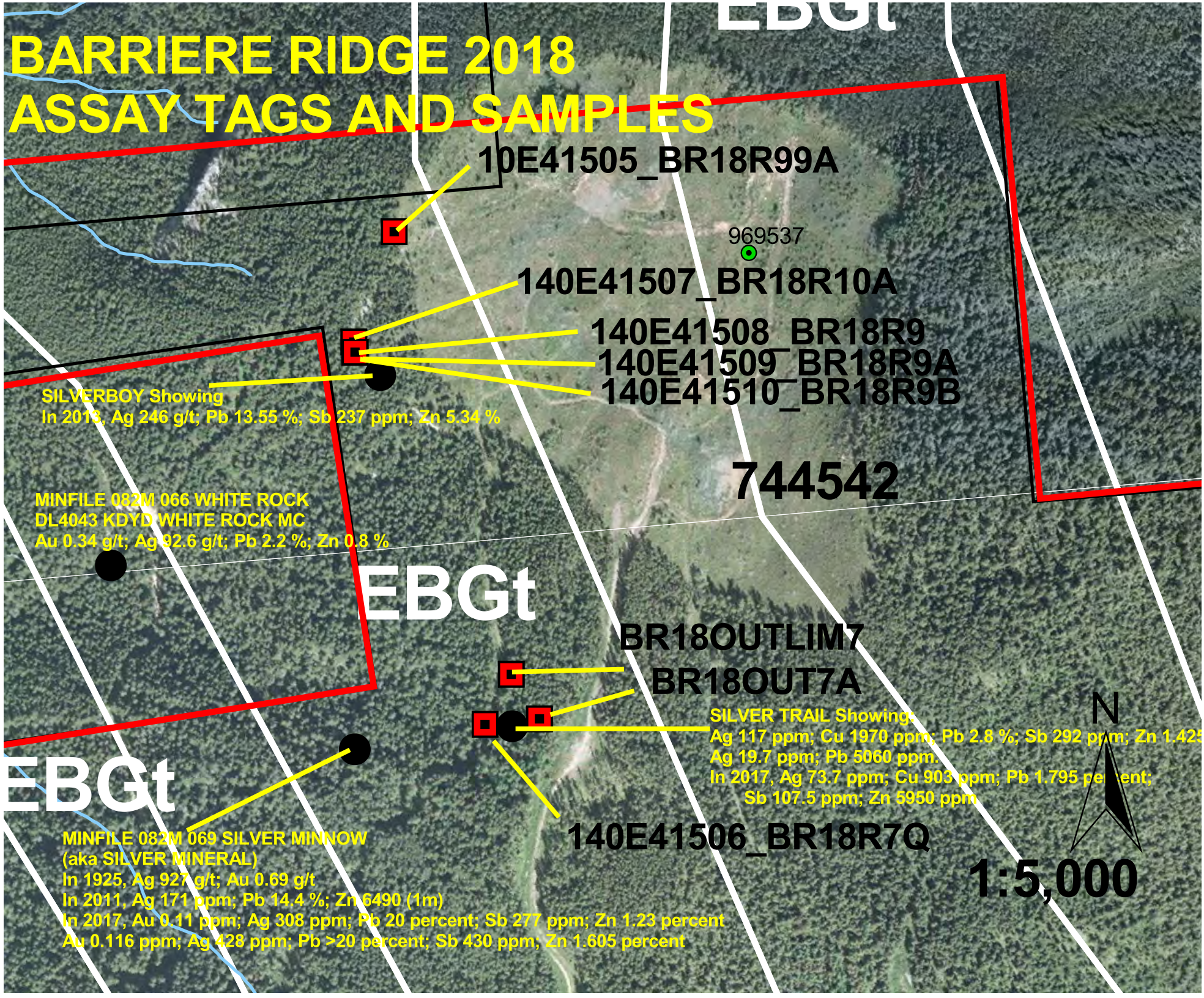

2018 ROCK SAMPLES
SILVERBOY Showing
In 2013, Ag 246 g/t; Pb 13.55 %; Sb 237 ppm; Zn 5.3 %
MINFILE 082M 222 CAD
Ag 15.6 g/t; Pb 0.04 %; Zn 0.8 % (0.1m)
EBGp
969537
MINFILE 082M 066 WHITE ROCK
DL4043 KOYD WHITE ROCK MC
Au 0.34 g/t; Ag 92.6 g/t; Pb 2.2 %; Zn 0.8 %
SILVER TRAIL Showing:
Ag 117 ppm; Cu 1970 ppm; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %.
Ag 19.7 ppm; Pb 5060 ppm.
In 2017, Ag 73.7 ppm; Cu 903 ppm; Pb 1.795 percent;
Sb 107.5 ppm; Zn 5950 ppm
969528
EBGt
EBGt
EBGt
2018: Geology Waypoint
Limestone Outcrop - Rock Samples
EBG
744542
969536
EBG
MINFILE 082M 069 SILVER MINNOW
(aka SILVER MINERAL)
In 1925, Ag 927 g/t; Au 0.69 g/t
In 2011, Ag 171 ppm; Pb 14.4 %; Zn 6490 (1m)
In 2017, Au 0.11 ppm; Ag 308 ppm; Pb 20 percent; Sb 277 ppm; Zn 1.23 percent
Au 0.116 ppm; Ag 428 ppm; Pb >20 percent; Sb 430 ppm; Zn 1.605 percent
969538
BRANCH 31 - ROAD
969539
744562
BRANCH 8 - ROAD
BARRIERE RIDGE:
2018 EXPLORATION TARGETS
82M765102
EBGq
969534
2018: ROAD SOIL LINE 18
20 Samples; 475 Lineal Metres
969540
969533
1:20,000
N
EBGt
SILVERGAL - 2011 New Discovery in EBGt rocks
Ag 210 g/t; Bi 270 ppm; Pb 12.4 %
Ag 172 g/t; Cu 7470 ppm; Pb 795 ppm; Sb >2000; Zn 3076 ppm
In 2017, Au 0.430 ppm; Ag 357 ppm; Bi 462 ppm; Pb 20 percent; Zn 121 ppm
Main Exploration Targets in Black Dash Dot Lines

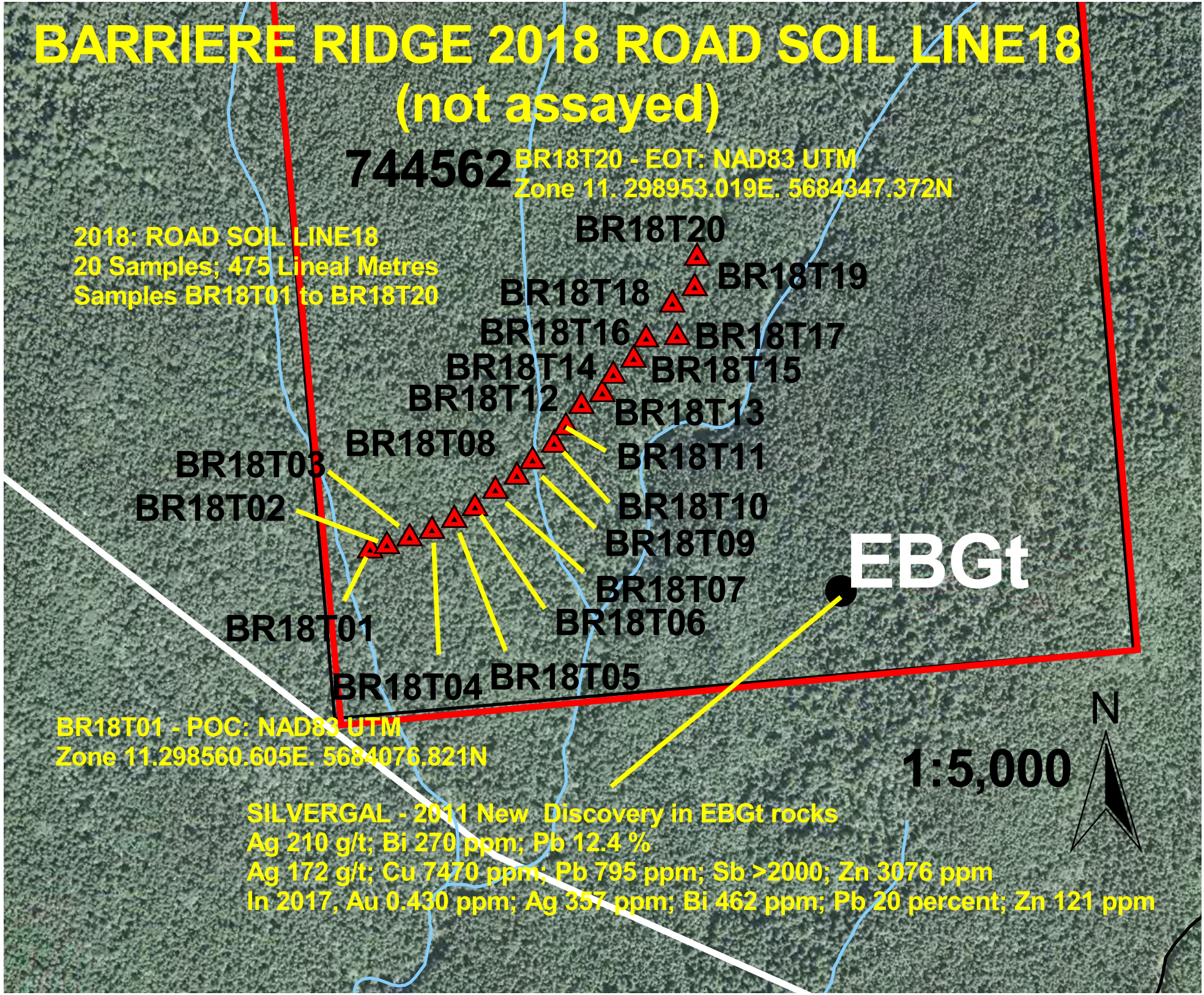

2018 ROCK SAMPLES
BR18R99, BR18R10AB, BR18R9
MINFILE 082M 222 CAD
Ag 15.6 g/t; Pb 0.04 %; Zn 0.8 % (0.1m)
EBGt
SILVERBOY Showing
In 2013, Ag 246 g/t; Pb 13.55 %; Sb 237 ppm; Zn 5.34 %
969537
2018 ROCK SAMPLES
BR18R7Q, BR18OUT7A, BR18OUTLIM7
MINFILE 082M 066 WHITE ROCK
DL4043 KOYD WHITE ROCK MC
Au 0.34 g/t; Ag 92.6 g/t; Pb 2.2 %; Zn 0.8 %
SILVER TRAIL Showing:
Ag 117 ppm; Cu 1970 ppm; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %.
Ag 19.7 ppm; Pb 5060 ppm.
In 2017, Ag 73.7 ppm; Cu 903 ppm; Pb 1.795 percent;
Sb 107.5 ppm; Zn 5950 ppm
969528
EBGp
EBGt
EBGt
EBGt
EBG
744542
969536
2018: Limestone Outcrop
Rock Samples BR18R1,
and BR18R2
969538
MINFILE 082M 069 SILVER MINNOW
(aka SILVER MINERAL)
In 1925, Ag 927 g/t; Au 0.69 g/t
In 2011, Ag 171 ppm; Pb 14.4 %; Zn 6490 (1m)
In 2017, Au 0.11 ppm; Ag 308 ppm; Pb 20 percent; Sb 277 ppm; Zn 1.23 percent
Au 0.116 ppm; Ag 428 ppm; Pb >20 percent; Sb 430 ppm; Zn 1.605 percent
EBG
744562
BARRIERE RIDGE OVERVIEW
2018 SAMPLING LOCATIONS
1:20,000
82M765102
EBGq
2018: ROAD SOIL LINE18
20 Samples; 475 Lineal Metres
Samples BR18T01 to BR18T20
969534
969540
969533
N
EBGt
SILVERGAL - 2011 New Discovery in EBGt rocks
Ag 210 g/t; Bi 270 ppm; Pb 12.4 %
Ag 172 g/t; Cu 7470 ppm; Pb 795 ppm; Sb >2000; Zn 3076 ppm
In 2017, Au 0.430 ppm; Ag 357 ppm; Bi 462 ppm; Pb 20 percent; Zn 121 ppm

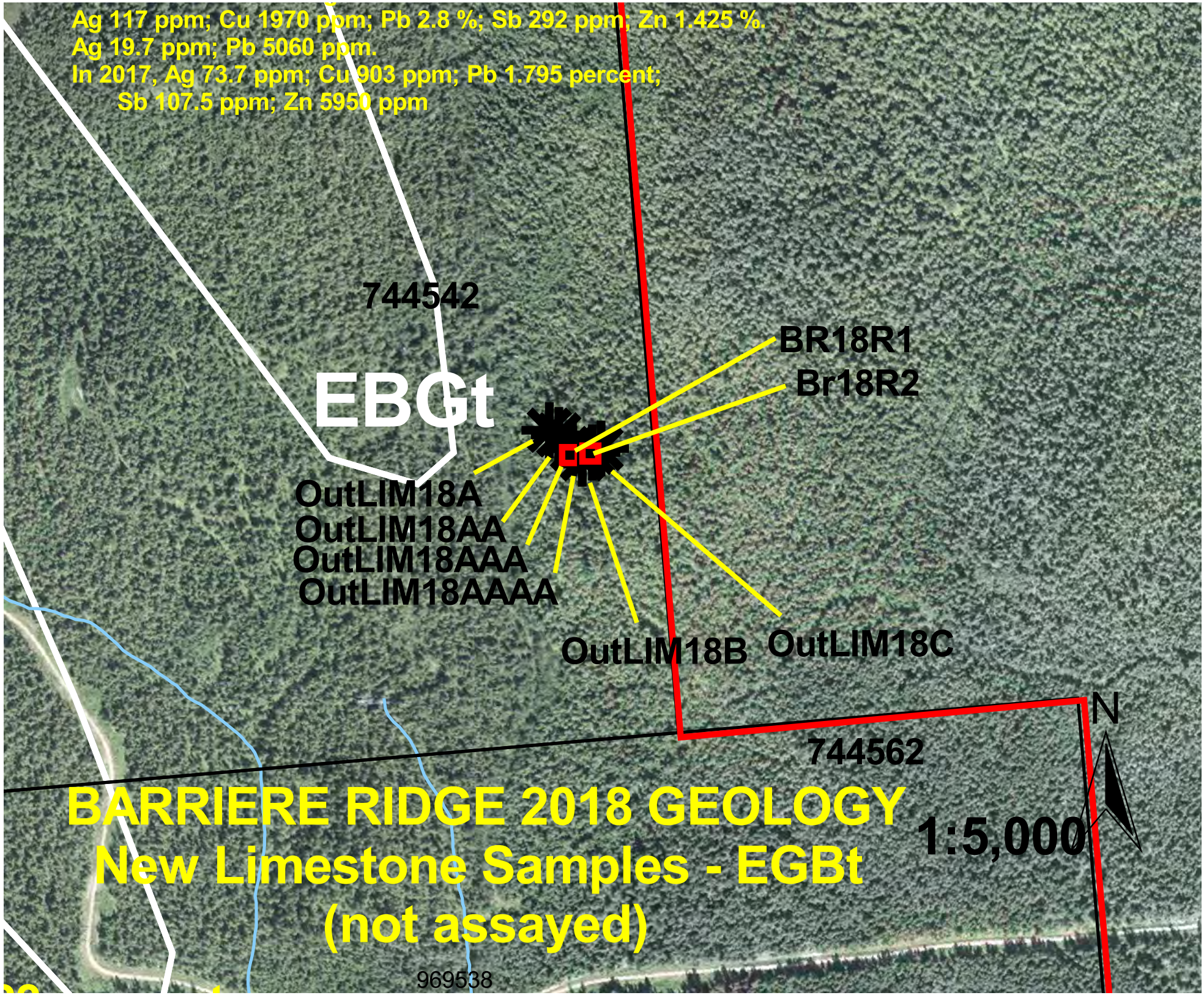

EBGt
SILVERBOY Showing
In 2013, Ag 246 g/t; Pb 13.55 %; Sb 237 ppm; Zn 5.34 %
10E41505_BR18R99A
EBGt
969537
140E41508_BR18R9
140E41509_BR18R9A
140E41510_BR18R9B
140E41507_BR18R10A
MINFILE 082M 222 CAD
Ag 15.6 g/t; Pb 0.04 %; Zn 0.8 % (0.1m)
969528
EBGp
MINFILE 082M 066 WHITE ROCK
DL4043 KDYD WHITE ROCK MC
Au 0.34 g/t; Ag 92.6 g/t; Pb 2.2 %; Zn 0.8
EBGt
BR18OUTLIM7
BR18OUT7A
140E41506_BR18R7Q
EBGt
SILVER TRAIL Showing:
Ag 117 ppm; Cu 1970 ppm; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %
Ag 19.7 ppm; Pb 5060 ppm.
In 2017, Ag 73.7 ppm; Cu 903 ppm; Pb 1.795 percent;
Sb 107.5 ppm; Zn 5950 ppm
BR18R1
Br18R2
OutLIM18A
OutLIM18AA
OutLIM18AAA
OutLIM18AAAA
OutLIM18B
OutLIM18C
EBGt
EBG
744542
MINFILE 082M 069 SILVER MINNOW
(aka SILVER MINERAL)
In 1925, Ag 927 g/t; Au 0.69 g/t
In 2011, Ag 171 ppm; Pb 14.4 %; Zn 6490 (1m)
In 2017, Au 0.11 ppm; Ag 308 ppm; Pb 20 percent; Sb 277 ppm; Zn 1.23 percent
Au 0.116 ppm; Ag 428 ppm; Pb >20 percent; Sb 430 ppm; Zn 1.605 percent
969536
969538
EBG
969526
744562
BARRIERE RIDGE OVERVIEW
Assay Tag and Sample Locations
EBGq
82M765102
969534
2018: ROAD SOIL LINE18
20 Samples; 475 Lineal Metres
Samples BR18T01 to BR18T20
BR18T20
BR18T19
BR18T18
BR18T17
BR18T16
969540
969532
1:20,000
N
BR18T15
BR18T14
BR18T13
BR18T12
BR18T11
BR18T10
BR18T01
BR18T02
BR18T03
BR18T04
BR18T05
BR18T06
BR18T07
BR18T08
BR18T09
EBGt
SILVERGAL - 2011 New Discovery in EBGt rocks
Ag 210 g/t; Bi 270 ppm; Pb 12.4 %
Ag 172 g/t; Cu 7470 ppm; Pb 795 ppm; Sb >2000; Zn 3076 ppm
In 2017, Au 0.430 ppm; Ag 357 ppm; Bi 462 ppm; Pb 20 percent; Zn 121 ppm

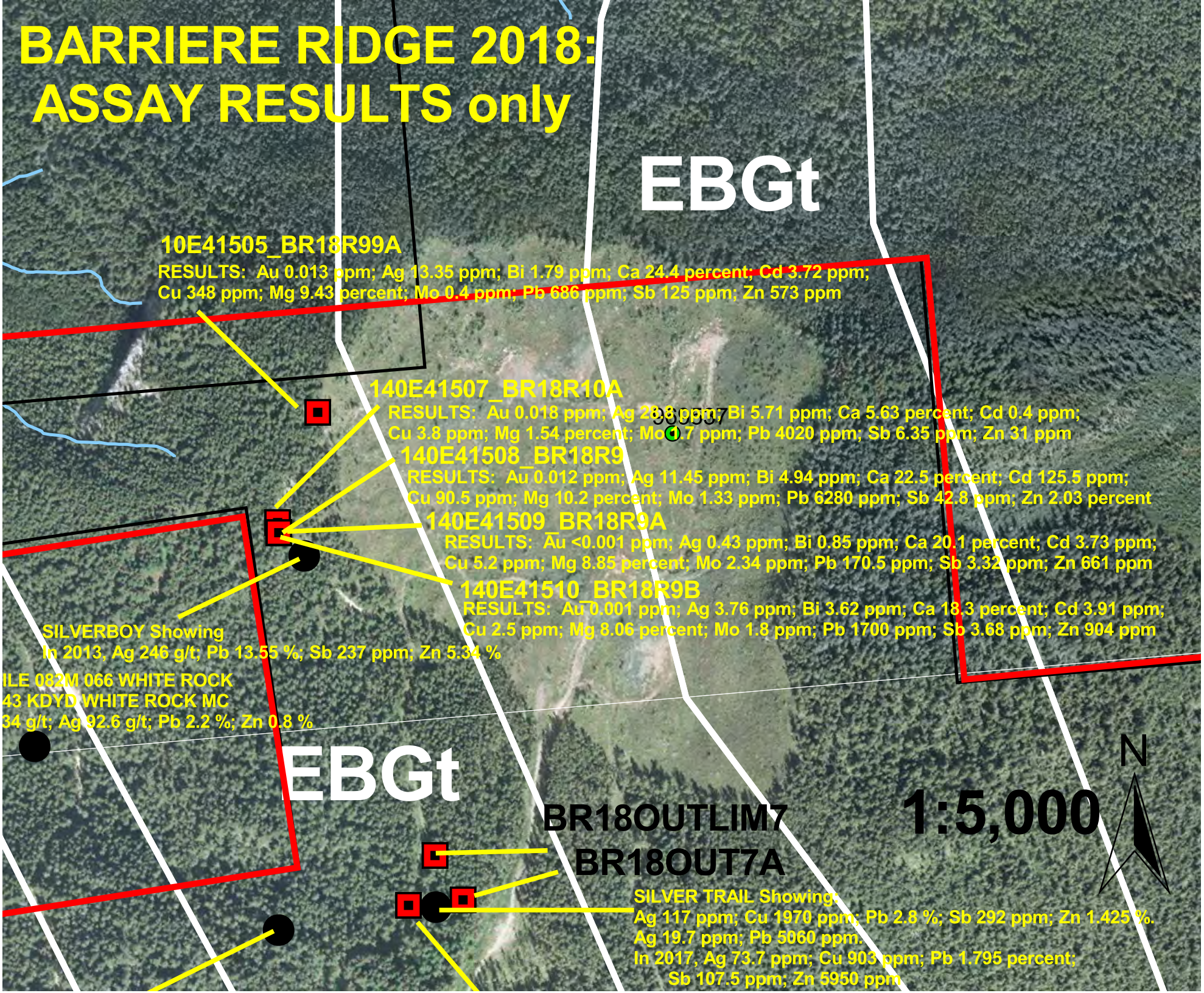

BARRIERE RIDGE OVERVIEW
Assay Tag and Sample Locations
10E41505_BR18R99A
; Sb 237 ppm; Zn 5.34 %
EBGt
969537
140E41508_BR18R9
140E41509_BR18R9A
140E41510_BR18R9B
140E41507_BR18R10A
MINFILE 082M 222 CAD
Ag 15.6 g/t; Pb 0.04 %; Z
SILVER TRAIL Showing:
Ag 117 ppm; Cu 1970 ppm; Pb 2.8 %; Sb 29
Ag 19.7 ppm; Pb 5060 ppm.
In 2017, Ag 73.7 ppm; Cu 903 ppm; Pb 1.795
Sb 107.5 ppm; Zn 5950 ppm
BR18OUTLIM7
BR18OUT7A
140E41506_BR18R7Q
EBGt
; Zn 0.8
EBGt
EBGt
BR18R1
Br18R2
OutLIM18A
OutLIM18AA
OutLIM18AAA
OutLIM18AAAA
OutLIM18B
OutLIM18C
744542
ER MINNOW
969536
.69 g/t
14.4 %; Zn 6490 (1m)
g 308 ppm; Pb 20 percent; Sb 277 ppm; Zn 1.23 percent
pm; Pb >20 percent; Sb 430 ppm; Zn 1.605 percent
969538
1:10,000
N
EB

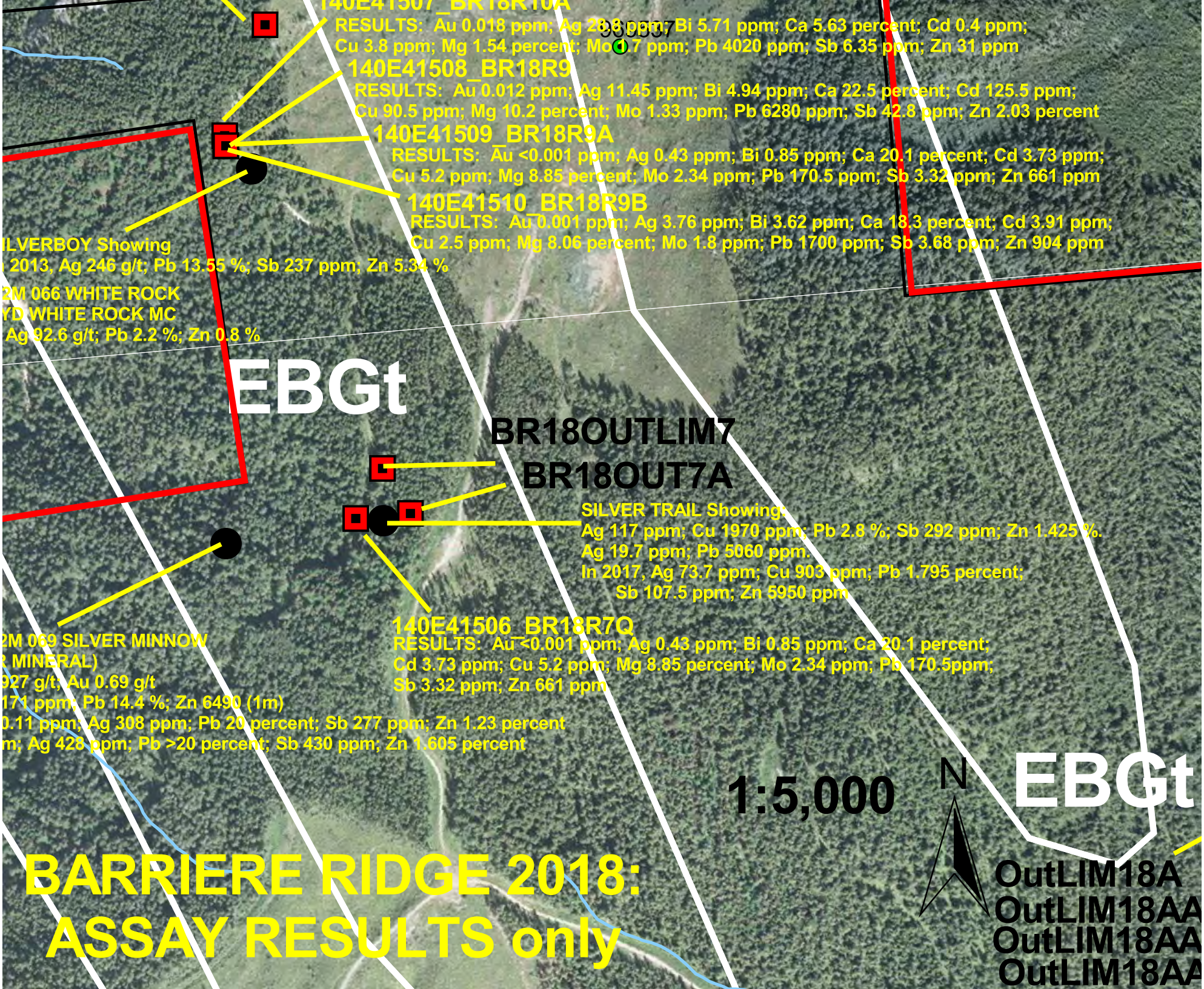

BARRIERE RIDGE OVERVIEW
Assay Tag and Sample Locations
2018: ROAD SOIL LINE18
20 Samples; 475 Lineal Metres
Samples BR18T01 to BR18T20
BR18T20
BR18T19
BR18T18
BR18T17
BR18T16
BR18T15
BR18T14
BR18T13
BR18T12
BR18T11
BR18T10
BR18T01
BR18T02
BR18T03
BR18T04
BR18T05
BR18T06
BR18T07
BR18T08
BR18T09
EBGt
969540
969549
1:10,000
N
SILVERGAL - 2011 New Discovery in EBGt rocks
Ag 210 g/t; Bi 270 ppm; Pb 12.4 %
Ag 172 g/t; Cu 7470 ppm; Pb 795 ppm; Sb >2000; Zn 3076 ppm
In 2017, Au 0.430 ppm; Ag 357 ppm; Bi 462 ppm; Pb 20 percent; Zn 121 ppm

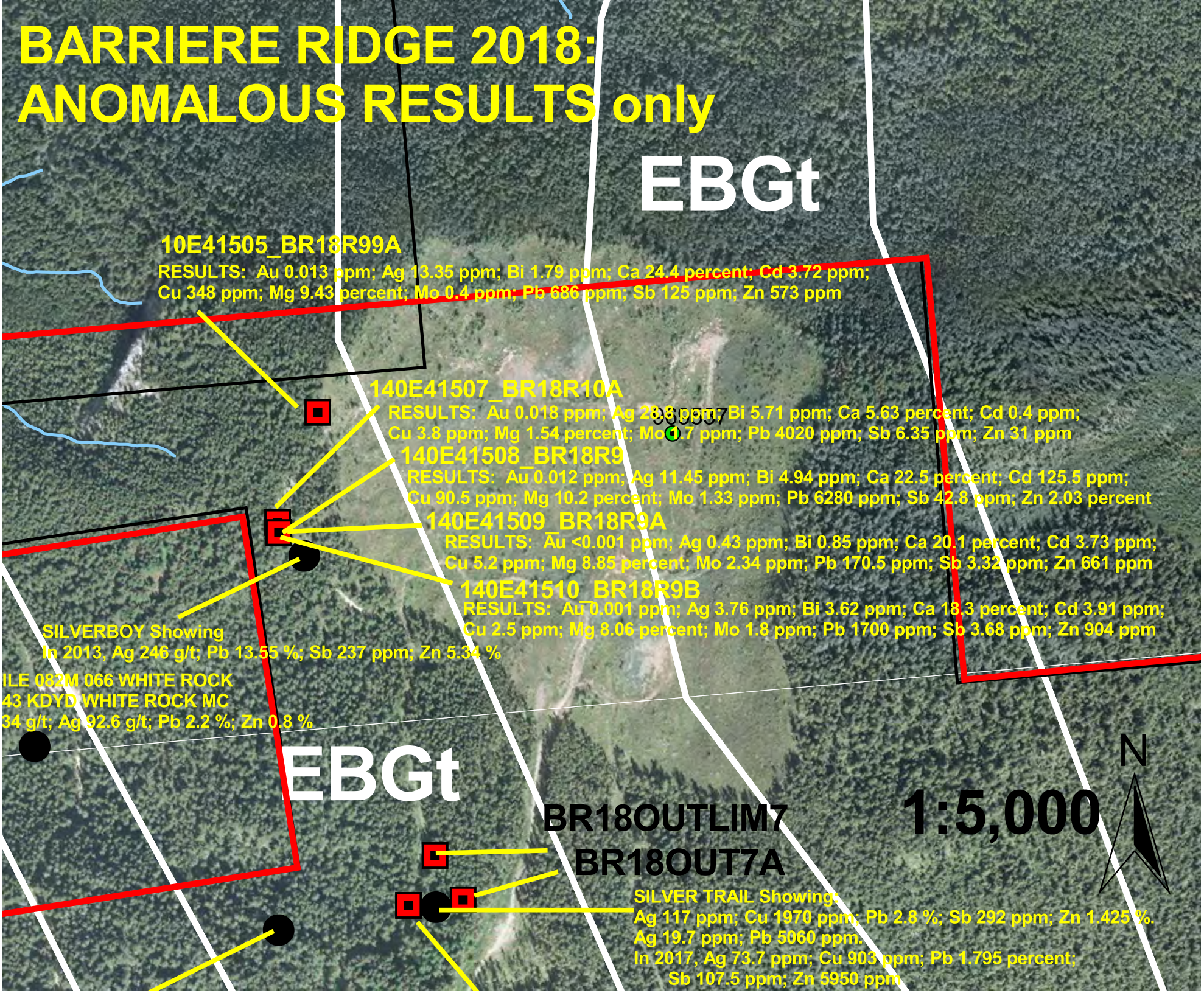

BARRIERE RIDGE 2018
ASSAY TAGS AND SAMPLES
10E41505_BR18R99A
969537
140E41507_BR18R10A
140E41508_BR18R9
140E41509_BR18R9A
140E41510_BR18R9B
SILVERBOY Showing
In 2018, Ag 246 g/t; Pb 13.55 %; Sb 237 ppm; Zn 5.34 %
744542
MINFILE 082M 066 WHITE ROCK
DL4043 KDYD WHITE ROCK MC
Au 0.34 g/t; Ag 92.6 g/t; Pb 2.2 %; Zn 0.8 %
EBGt
BR18OUTLIM7
BR18OUT7A
SILVER TRAIL Showing:
Ag 117 ppm; Cu 1970 ppm; Pb 2.8 %; Sb 292 ppm; Zn 1.42
Ag 19.7 ppm; Pb 5060 ppm.
In 2017, Ag 73.7 ppm; Cu 903 ppm; Pb 1.795 percent;
Sb 107.5 ppm; Zn 5950 ppm
EBGt
MINFILE 082M 069 SILVER MINNOW
(aka SILVER MINERAL)
In 1925, Ag 927 g/t; Au 0.69 g/t
In 2011, Ag 171 ppm; Pb 14.4 %; Zn 6490 (1m)
In 2017, Au 0.11 ppm; Ag 308 ppm; Pb 20 percent; Sb 277 ppm; Zn 1.23 percent
Au 0.116 ppm; Ag 428 ppm; Pb >20 percent; Sb 430 ppm; Zn 1.605 percent
140E41506_BR18R7Q
N
1:5,000

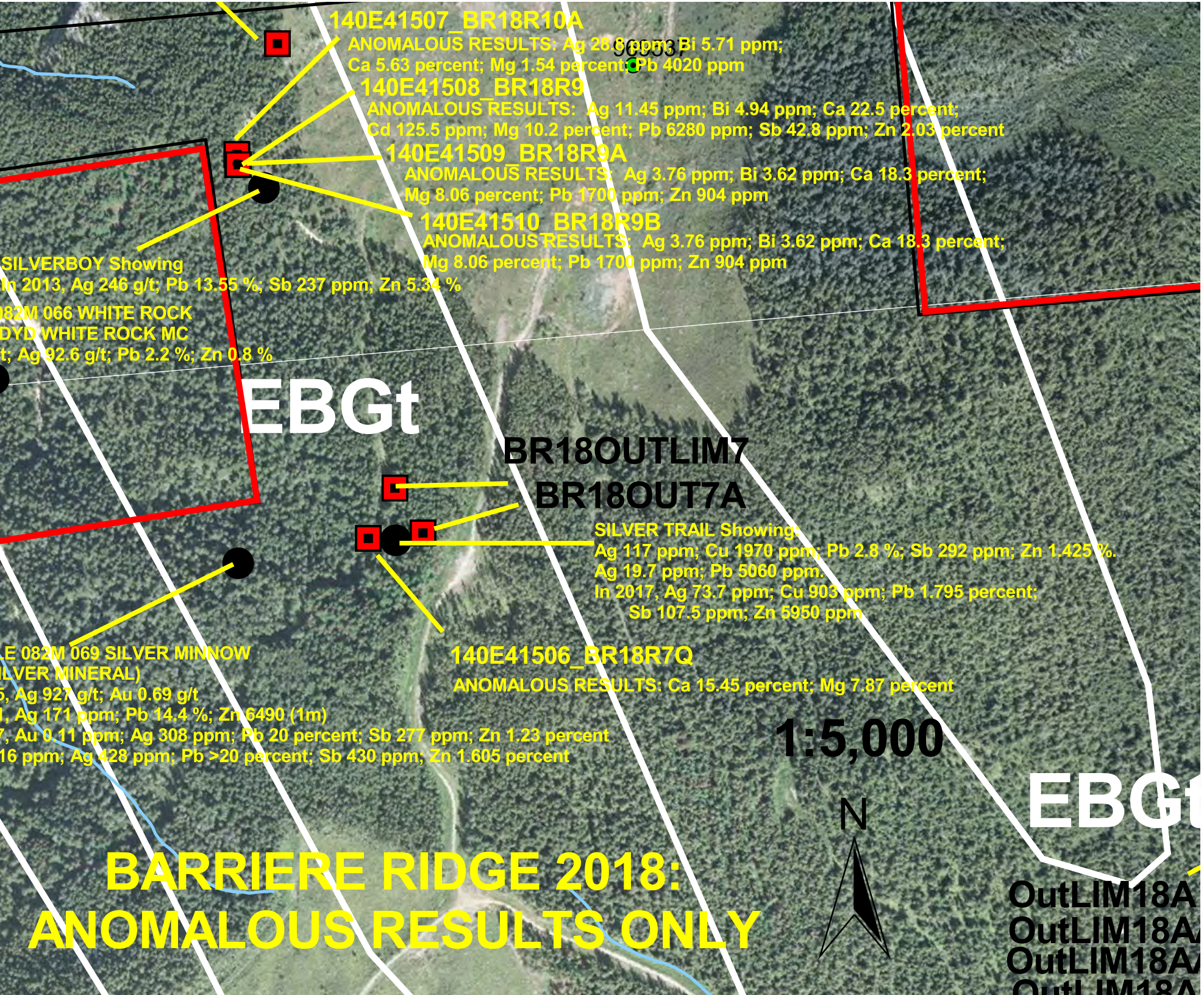

BARRIERE RIDGE 2018 ROAD SOIL LINE18
(not assayed)
744562
BR18T20 - EOT: NAD83 UTM
Zone 11. 298953.019E. 5684347.372N
2018: ROAD SOIL LINE18
20 Samples; 475 Lineal Metres
Samples BR18T01 to BR18T20
BR18T20
BR18T19
BR18T18
BR18T16
BR18T17
BR18T14
BR18T15
BR18T12
BR18T13
BR18T08
BR18T11
BR18T03
BR18T02
BR18T10
BR18T09
EBGt
BR18T07
BR18T01
BR18T06
BR18T04
BR18T05
BR18T01 - POC: NAD83 UTM
Zone 11.298560.605E. 5684076.821N
N
1:5,000
SILVERGAL - 2011 New Discovery in EBGt rocks
Ag 210 g/t; Bi 270 ppm; Pb 12.4 %
Ag 172 g/t; Cu 7470 ppm; Pb 795 ppm; Sb >2000; Zn 3076 ppm
In 2017, Au 0.430 ppm; Ag 357 ppm; Bi 462 ppm; Pb 20 percent; Zn 121 ppm


Ag 117 ppm; Cu 1970 ppm; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %.
Ag 19.7 ppm; Pb 5060 ppm.
In 2017, Ag 73.7 ppm; Cu 903 ppm; Pb 1.795 percent;
Sb 107.5 ppm; Zn 5950 ppm
744542
EBGt
BR18R1
Br18R2
OutLIM18A
OutLIM18AA
OutLIM18AAA
OutLIM18AAAA
OutLIM18B
OutLIM18C
744562
N
BARRIERE RIDGE 2018 GEOLOGY
New Limestone Samples - EGBt
(not assayed)
1:5,000
969538


BARRIERE RIDGE 2018:
ASSAY RESULTS only
EBGt
10E41505_BR18R99A
RESULTS: Au 0.013 ppm; Ag 13.35 ppm; Bi 1.79 ppm; Ca 24.4 percent; Cd 3.72 ppm;
Cu 348 ppm; Mg 9.43 percent; Mo 0.4 ppm; Pb 686 ppm; Sb 125 ppm; Zn 573 ppm
140E41507_BR18R10A
RESULTS: Au 0.018 ppm; Ag 28.8 ppm; Bi 5.71 ppm; Ca 5.63 percent; Cd 0.4 ppm;
Cu 3.8 ppm; Mg 1.54 percent; Mo 0.7 ppm; Pb 4020 ppm; Sb 6.35 ppm; Zn 31 ppm
140E41508_BR18R9
RESULTS: Au 0.012 ppm; Ag 11.45 ppm; Bi 4.94 ppm; Ca 22.5 percent; Cd 125.5 ppm;
Cu 90.5 ppm; Mg 10.2 percent; Mo 1.33 ppm; Pb 6280 ppm; Sb 42.8 ppm; Zn 2.03 percent
140E41509_BR18R9A
RESULTS: Au <0.001 ppm; Ag 0.43 ppm; Bi 0.85 ppm; Ca 20.1 percent; Cd 3.73 ppm;
Cu 5.2 ppm; Mg 8.85 percent; Mo 2.34 ppm; Pb 170.5 ppm; Sb 3.32 ppm; Zn 661 ppm
140E41510_BR18R9B
RESULTS: Au 0.001 ppm; Ag 3.76 ppm; Bi 3.62 ppm; Ca 18.3 percent; Cd 3.91 ppm;
Cu 2.5 ppm; Mg 8.06 percent; Mo 1.8 ppm; Pb 1700 ppm; Sb 3.68 ppm; Zn 904 ppm
SILVERBOY Showing
In 2013, Ag 246 g/t; Pb 13.55 %; Sb 237 ppm; Zn 5.34 %
ILE 082M 066 WHITE ROCK
43 KDYD WHITE ROCK MC
34 g/t; Ag 92.6 g/t; Pb 2.2 %; Zn 0.8 %
EBGt
BR18OUTLIM7
BR18OUT7A
SILVER TRAIL Showing:
Ag 117 ppm; Cu 1970 ppm; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %.
Ag 19.7 ppm; Pb 5060 ppm.
In 2017, Ag 73.7 ppm; Cu 903 ppm; Pb 1.795 percent;
Sb 107.5 ppm; Zn 5950 ppm
1:5,000
N


140E41507_BR18R10A
RESULTS: Au 0.018 ppm; Ag 28.8 ppm; Bi 5.71 ppm; Ca 5.63 percent; Cd 0.4 ppm;
Cu 3.8 ppm; Mg 1.54 percent; Mo 0.7 ppm; Pb 4020 ppm; Sb 6.35 ppm; Zn 31 ppm
140E41508_BR18R9
RESULTS: Au 0.012 ppm; Ag 11.45 ppm; Bi 4.94 ppm; Ca 22.5 percent; Cd 125.5 ppm;
Cu 90.5 ppm; Mg 10.2 percent; Mo 1.33 ppm; Pb 6280 ppm; Sb 42.8 ppm; Zn 2.03 percent
140E41509_BR18R9A
RESULTS: Au <0.001 ppm; Ag 0.43 ppm; Bi 0.85 ppm; Ca 20.1 percent; Cd 3.73 ppm;
Cu 5.2 ppm; Mg 8.85 percent; Mo 2.34 ppm; Pb 170.5 ppm; Sb 3.32 ppm; Zn 661 ppm
140E41510_BR18R9B
RESULTS: Au 0.001 ppm; Ag 3.76 ppm; Bi 3.62 ppm; Ca 18.3 percent; Cd 3.91 ppm;
Cu 2.5 ppm; Mg 8.06 percent; Mo 1.8 ppm; Pb 1700 ppm; Sb 3.68 ppm; Zn 904 ppm
ILVERBOY Showing
2013, Ag 246 g/t; Pb 13.55 %; Sb 237 ppm; Zn 5.34 %
2M 066 WHITE ROCK
YD WHITE ROCK MC
Ag 92.6 g/t; Pb 2.2 %; Zn 0.8 %
EBGt
BR18OUTLIM7
BR18OUT7A
SILVER TRAIL Showing:
Ag 117 ppm; Cu 1970 ppm; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %.
Ag 19.7 ppm; Pb 5060 ppm.
In 2017, Ag 73.7 ppm; Cu 903 ppm; Pb 1.795 percent;
Sb 107.5 ppm; Zn 5950 ppm
140E41506_BR18R7Q
RESULTS: Au <0.001 ppm; Ag 0.43 ppm; Bi 0.85 ppm; Ca 20.1 percent;
Cd 3.73 ppm; Cu 5.2 ppm; Mg 8.85 percent; Mo 2.34 ppm; Pb 170.5ppm;
Sb 3.32 ppm; Zn 661 ppm
2M 069 SILVER MINNOW
MINERAL)
927 g/t; Au 0.69 g/t
171 ppm; Pb 14.4 %; Zn 6490 (1m)
0.11 ppm; Ag 308 ppm; Pb 20 percent; Sb 277 ppm; Zn 1.23 percent
m; Ag 428 ppm; Pb >20 percent; Sb 430 ppm; Zn 1.605 percent
1:5,000
N
EBGt
OutLIM18A
OutLIM18AA
OutLIM18AA
OutLIM18AA
BARRIERE RIDGE 2018:
ASSAY RESULTS only

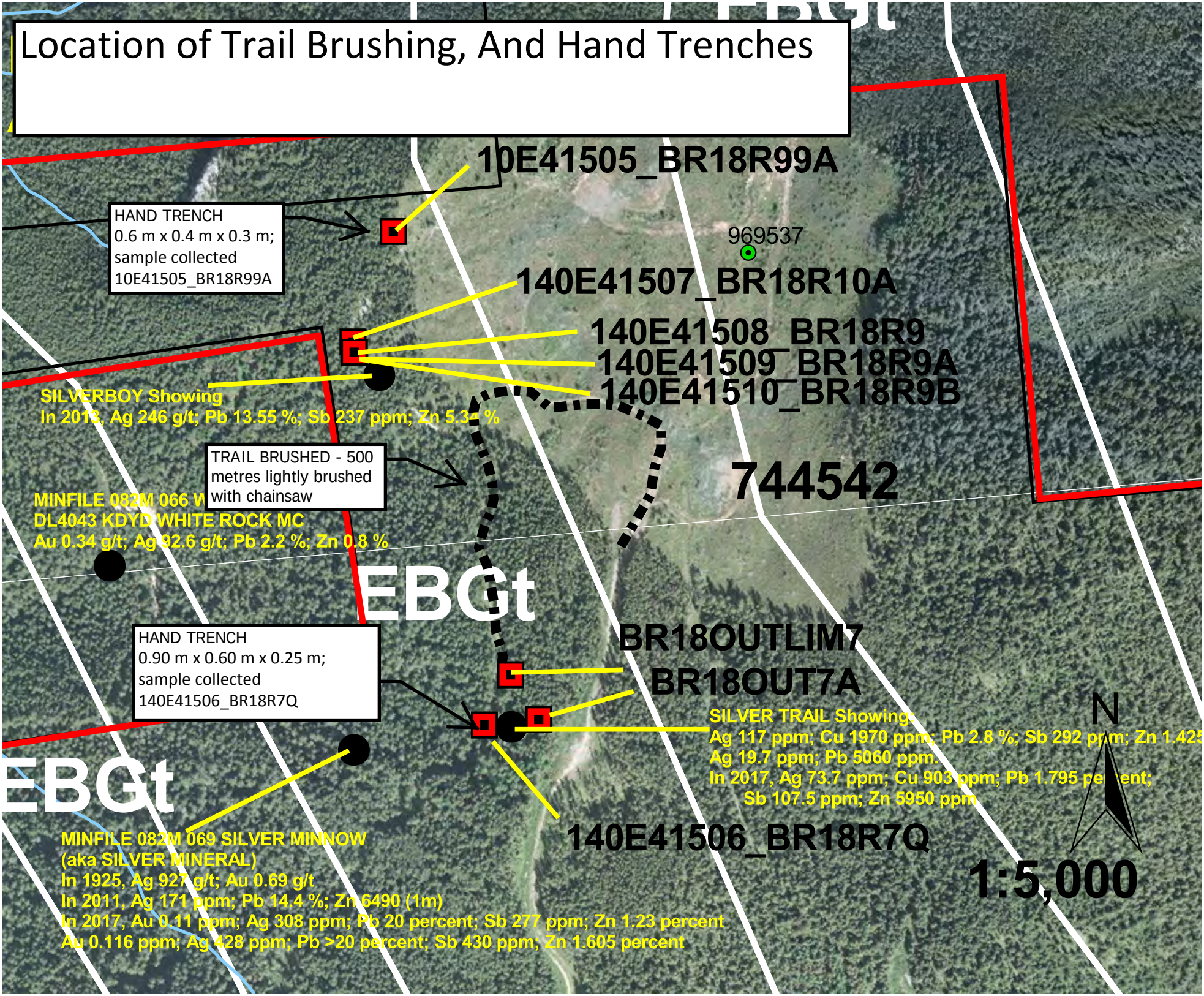

BARRIERE RIDGE 2018:
ANOMALOUS RESULTS only
EBGt
10E41505_BR18R99A
RESULTS: Au 0.013 ppm; Ag 13.35 ppm; Bi 1.79 ppm; Ca 24.4 percent; Cd 3.72 ppm;
Cu 348 ppm; Mg 9.43 percent; Mo 0.4 ppm; Pb 686 ppm; Sb 125 ppm; Zn 573 ppm
140E41507_BR18R10A
RESULTS: Au 0.018 ppm; Ag 28.8 ppm; Bi 5.71 ppm; Ca 5.63 percent; Cd 0.4 ppm;
Cu 3.8 ppm; Mg 1.54 percent; Mo 0.7 ppm; Pb 4020 ppm; Sb 6.35 ppm; Zn 31 ppm
140E41508_BR18R9
RESULTS: Au 0.012 ppm; Ag 11.45 ppm; Bi 4.94 ppm; Ca 22.5 percent; Cd 125.5 ppm;
Cu 90.5 ppm; Mg 10.2 percent; Mo 1.33 ppm; Pb 6280 ppm; Sb 42.8 ppm; Zn 2.03 percent
140E41509_BR18R9A
RESULTS: Au <0.001 ppm; Ag 0.43 ppm; Bi 0.85 ppm; Ca 20.1 percent; Cd 3.73 ppm;
Cu 5.2 ppm; Mg 8.85 percent; Mo 2.34 ppm; Pb 170.5 ppm; Sb 3.32 ppm; Zn 661 ppm
140E41510_BR18R9B
RESULTS: Au 0.001 ppm; Ag 3.76 ppm; Bi 3.62 ppm; Ca 18.3 percent; Cd 3.91 ppm;
Cu 2.5 ppm; Mg 8.06 percent; Mo 1.8 ppm; Pb 1700 ppm; Sb 3.68 ppm; Zn 904 ppm
SILVERBOY Showing
In 2013, Ag 246 g/t; Pb 13.55 %; Sb 237 ppm; Zn 5.34 %
ILE 082M 066 WHITE ROCK
43 KDYD WHITE ROCK MC
34 g/t; Ag 92.6 g/t; Pb 2.2 %; Zn 0.8 %
EBGt
BR18OUTLIM7
BR18OUT7A
SILVER TRAIL Showing:
Ag 117 ppm; Cu 1970 ppm; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %.
Ag 19.7 ppm; Pb 5060 ppm.
In 2017, Ag 73.7 ppm; Cu 903 ppm; Pb 1.795 percent;
Sb 107.5 ppm; Zn 5950 ppm
1:5,000
N


140E41507_BR18R10A
ANOMALOUS RESULTS: Ag 28.8 ppm; Bi 5.71 ppm;
Ca 5.63 percent; Mg 1.54 percent; Pb 4020 ppm
140E41508_BR18R9
ANOMALOUS RESULTS: Ag 11.45 ppm; Bi 4.94 ppm; Ca 22.5 percent;
Cd 125.5 ppm; Mg 10.2 percent; Pb 6280 ppm; Sb 42.8 ppm; Zn 2.03 percent
140E41509_BR18R9A
ANOMALOUS RESULTS: Ag 3.76 ppm; Bi 3.62 ppm; Ca 18.3 percent;
Mg 8.06 percent; Pb 1700 ppm; Zn 904 ppm
140E41510_BR18R9B
ANOMALOUS RESULTS: Ag 3.76 ppm; Bi 3.62 ppm; Ca 18.3 percent;
Mg 8.06 percent; Pb 1700 ppm; Zn 904 ppm
SILVERBOY Showing
In 2013, Ag 246 g/t; Pb 13.55 %; Sb 237 ppm; Zn 5.34 %
082M 066 WHITE ROCK
DYD WHITE ROCK MC
t; Ag 92.6 g/t; Pb 2.2 %; Zn 0.8 %
EBGt
BR18OUTLIM7
BR18OUT7A
SILVER TRAIL Showing:
Ag 117 ppm; Cu 1970 ppm; Pb 2.8 %; Sb 292 ppm; Zn 1.425 %.
Ag 19.7 ppm; Pb 5060 ppm.
In 2017, Ag 73.7 ppm; Cu 903 ppm; Pb 1.795 percent;
Sb 107.5 ppm; Zn 5950 ppm
E 082M 069 SILVER MINNOW
LVER MINERAL)
5, Ag 927 g/t; Au 0.69 g/t
, Ag 171 ppm; Pb 14.4 %; Zn 6490 (1m)
, Au 0.11 ppm; Ag 308 ppm; Pb 20 percent; Sb 277 ppm; Zn 1.23 percent
16 ppm; Ag 428 ppm; Pb >20 percent; Sb 430 ppm; Zn 1.605 percent
140E41506_BR18R7Q
ANOMALOUS RESULTS: Ca 15.45 percent; Mg 7.87 percent
1:5,000
N
EBGt
OutLIM18A
OutLIM18A
OutLIM18A
BARRIERE RIDGE 2018:
ANOMALOUS RESULTS ONLY

BARRIERE RIDGE CLAIMS: GENERAL LIST OF HISTORIC DIAMOND DRILLING BASED ON ARIS REPORTS.

	ESTIMATED TOTAL LENGTH OF DRILLING (metres)					1,836.60						
Year	ARIS Report	Operator	Drill Hole	Core Size	S.D. Length (m)	H.D. Length (m)	Azimuth (deg)	Angle (deg)	Depth to Collar (m)	Results and Comments	Interval	Coordinates
					1,836.60	359.38						
1984	13168	Noranda Inc	CAD 84-1	NQ	66.1		250	-45	12.5	Ag 2 g/t; Zn 0.65 % Drill logs in ARIS report.	2 m	Line 145+15E and ll0+00N.
1984	13168	Noranda Inc	CAD 84-2	NQ	66.1		250	-45	3	Ag 15.6 g/t; Zn 12,000 ppm; Pb 392 ppm over 0.1 metres; and Ag 4.6 g/t; Zn 136 ppm; Pb 1070 ppm over 0.1 metres; and Ag 3.6 g/t; Zn 500 ppm; Pb 1020 ppm over 0.6 metres. Drill logs in ARIS report.	In 3 separate quartz veins	Line 134+58E and ll2+00N,
1985	14397	Noranda Inc	CAD 85-1	NQ	137.2		270	-45	17.08	Drilling failed to intersect mineralization that would explain Soil and IP anomaly. Drill logs in ARIS report.		East 146+95 and North 110+90
1985	14397	Noranda Inc	CAD 85-2	NQ	47.5		270	-65	13.1	Drilling failed to intersect mineralization that would explain Soil and IP anomaly. Drill logs in ARIS report.		East 146+47 and North 110+95
1987	16331	Merritech Development Corporation	CAD 87-1	NQ	175		250	-45	13.4	Drilling failed to intersect mineralization that would explain soil anomaly. Drill logs in ARIS report.		143+00 East and 110+00 North
1987	16331	Merritech Development Corporation	CAD 87-2	NQ	98.8		250	-60	9.1	Drilling failed to intersect mineralization that would explain soil anomaly. Drill logs in ARIS report.		146+42 East and 111+50 North
1987	16331	Merritech Development Corporation	CAD 87-3	NQ	120.4		250	-45	3	Drilling failed to intersect mineralization that would explain soil anomaly. Drill logs in ARIS report.		145+60.5 East and 106+94 North

Year	ARIS Report	Operator	Drill Hole	Core Size	S.D. Length (m)	H.D. Length (m)	Azimuth (deg)	Angle (deg)	Depth to Collar (m)	Results and Comments	Interval	Coordinates
1987	17739	National Resources Exploration Ltd	DDH 87-1	NQ	na	125	SW	na	na	Unknown, Drill site shown on map 125 m horizontal distance. Drill logs not found.		115 North line about 134.4 m west of baseline.
1987	17739	National Resources Exploration Ltd	DDH 87-2	NQ	na	134.375	SW	na	na	Unknown, Drill site shown on map 134 m horizontal distance. Drill logs not found.		114 North line about 93.8 m west of baseline.
1987	17739	National Resources Exploration Ltd	DDH 87-3	NQ	na	50	SW	na	na	Unknown, Drill site shown on map 50 m horizontal distance. Drill logs not found.		113 North line about 156.3 mwest of baseline.
1987	17739	National Resources Exploration Ltd	DDH 87-4	NQ	na	50	SW	na	na	Unknown, Drill site shown on map 50 m horizontal distance. Drill logs not found.		113 North line about 156.3 mwest of baseline.
1989	19851	Minnova Inc.	MBD89-1		102.7		270	-50	3.05	No significant mineralization or alteration was encountered. Drill logs in ARIS report.		Grid 1-C: 109+50mE and 137+00mN
1989	19851	Minnova Inc.	MBD89-2		96.6		245	-50	13.3	No significant mineralization or alteration was encountered. Drill logs in ARIS report.		Grid 1-C: 110+75mE and 133+00mN
1989	19851	Minnova Inc.	MBD89-3		105.8		270	-48	18.3	No significant mineralization or alteration was encountered. Drill logs in ARIS report.		Grid 1-B: 100+60mE and 105+20mN
1989	19851	Minnova Inc.	MBD89-4		124.1		235	-50	12.2	No significant mineralization or alteration was encountered. Drill logs in ARIS report.		Grid 6: 89+00mE and 120+00mN
1989	19851	Minnova Inc.	MBD89-5		95.4		235	-50	30.5	No significant mineralization or alteration was encountered. Drill logs in ARIS report.		Grid 6: 89+35mE and 116+00mN


Location of Trail Brushing, And Hand Trenches
10E41505_BR18R99A
HAND TRENCH
0.6 m x 0.4 m x 0.3 m;
sample collected
10E41505_BR18R99A
969537
140E41507_BR18R10A
140E41508_BR18R9
140E41509_BR18R9A
140E41510_BR18R9B
SILVERBOY Showing
In 2018, Ag 246 g/t; Pb 13.55 %; Sb 237 ppm; Zn 5.34 %
TRAIL BRUSHED - 500
metres lightly brushed
with chainsaw
744542
MINFILE 082M 066 W
DL4043 KDYD WHITE ROCK MC
Au 0.34 g/t; Ag 92.6 g/t; Pb 2.2 %; Zn 0.8 %
EBGt
HAND TRENCH
0.90 m x 0.60 m x 0.25 m;
sample collected
140E41506_BR18R7Q
BR18OUTLIM7
BR18OUT7A
SILVER TRAIL Showing:
Ag 117 ppm; Cu 1970 ppm; Pb 2.8 %; Sb 292 ppm; Zn 1.425
Ag 19.7 ppm; Pb 5060 ppm.
In 2017, Ag 73.7 ppm; Cu 903 ppm; Pb 1.795 percent;
Sb 107.5 ppm; Zn 5950 ppm
140E41506_BR18R7Q
EBGt
MINFILE 082M 069 SILVER MINNOW
(aka SILVER MINERAL)
In 1925, Ag 927 g/t; Au 0.69 g/t
In 2011, Ag 171 ppm; Pb 14.4 %; Zn 6490 (1m)
In 2017, Au 0.11 ppm; Ag 308 ppm; Pb 20 percent; Sb 277 ppm; Zn 1.23 percent
Au 0.116 ppm; Ag 428 ppm; Pb >20 percent; Sb 430 ppm; Zn 1.605 percent
N
1:5,000

ALS Minerals

SAMPLE PREPARATION PACKAGE

PREP- 31

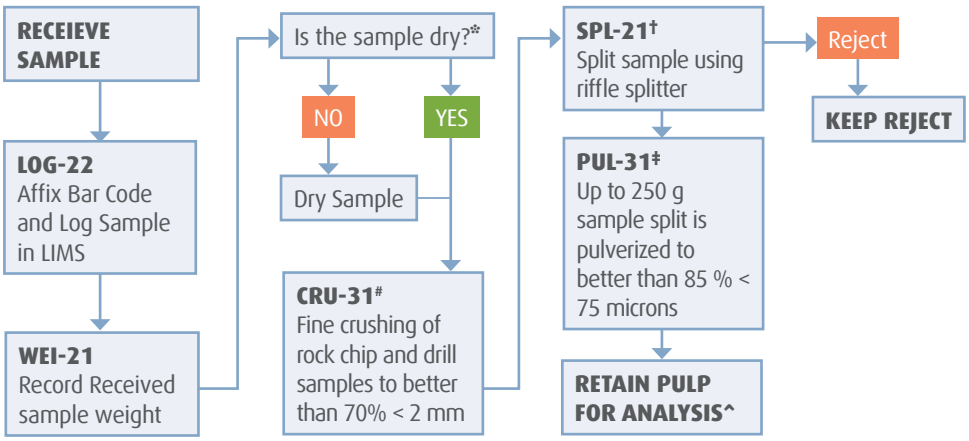
STANDARD SAMPLE PREPARATION: DRY, CRUSH, SPLIT AND PULVERIZE

Sample preparation is the most critical step in the entire laboratory operation. The purpose of preparation is to produce a homogeneous analytical sub-sample that is fully representative of the material submitted to the laboratory.

The sample is logged in the tracking system, weighed, dried and finely crushed to better than 70 % passing a 2 mm (Tyler 9 mesh, US Std. No.10) screen. A split of up to 250 g is taken and pulverized to better than 85 % passing a 75 micron (Tyler 200 mesh, US Std. No. 200) screen. This method is appropriate for rock chip or drill samples.

METHOD CODE	DESCRIPTION
LOG-22	Sample is logged in tracking system and a bar code label is attached.
DRY-21	Drying of excessively wet samples in drying ovens. This is the default drying procedure for most rock chip and drill samples.
CRU-31	Fine crushing of rock chip and drill samples to better than 70% of the sample passing 2 mm.
SPL-21	Split sample using riffle splitter.
PUL-31	A sample split of up to 250 g is pulverized to better than 85% of the sample passing 75 microns.

FLOW CHART - SAMPLE PREPARATION PACKAGE – PREP-31 STANDARD SAMPLE PREPARATION: DRY, CRUSH, SPLIT AND PULVERIZE



*If samples air-dry overnight, no charge to client. If samples are excessively wet, the sample should be dried to a maximum of 120°C. (**DRY-21**)

#QC testing of crushing efficiency is conducted on random samples (**CRU-QC**).

†The sample reject is saved or dumped pending client instructions. Prolonged storage (> 45 days) of rejects will be charged to the client.

‡QC testing of pulverizing efficiency is conducted on random samples (**PUL-QC**).

^Lab splits are required when analyses must be performed at a location different than where samples received.

ALS Minerals

SAMPLE PREPARATION PACKAGE

PREP- 41

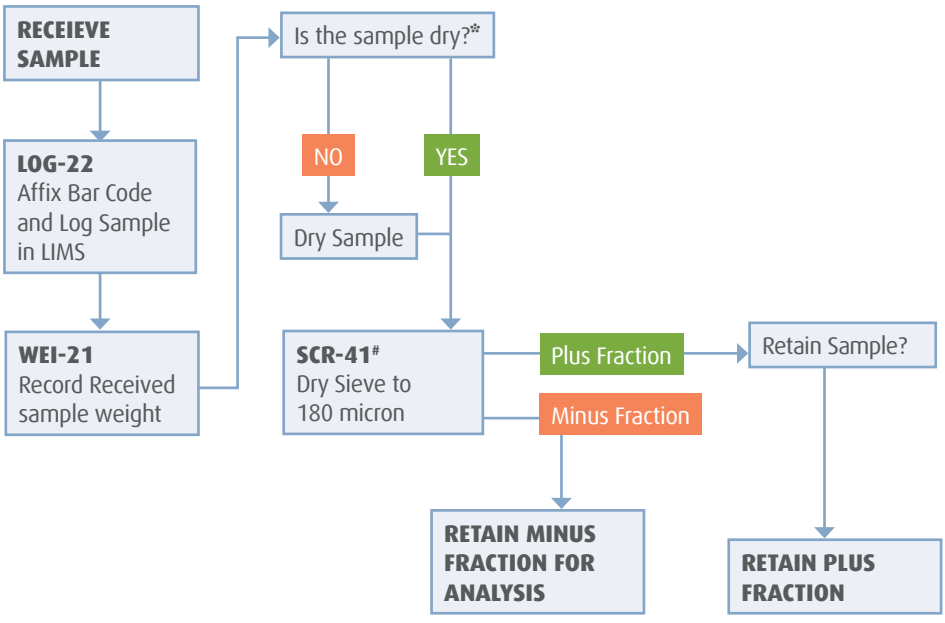
STANDARD PREPARATION: DRY SAMPLE AND DRY- SIEVE TO –180 MICRON

Sample preparation is the most critical step in the entire laboratory operation. The purpose of preparation is to produce a homogeneous analytical sub-sample that is fully representative of the material submitted to the laboratory.

An entire sample is dried and then dry-sieved using a 180 micron (Tyler 80 mesh) screen. The plus fraction is retained unless disposal is requested. This method is appropriate for soil or sediment samples up to 1 kg in weight.

METHOD CODE	DESCRIPTION
LOG-22	Sample is logged in tracking system and a bar code label is attached.
DRY-22	Low temperature drying of excessively wet samples where the oven temperature is not to exceed 60°C. This method is suitable for more soil and sediment samples that are analyzed for volatile elements.
SCR-41	Sample is dry-sieved to – 180 micron and both the plus and minus fractions are retained.

SAMPLE PREPARATION FLOWCHART PACKAGE –PREP- 41



*If samples air-dry overnight, no charge to client. If samples are excessively wet, the sample should be dried to a maximum of 120°C. (**DRY-21**)

#The plus fraction is the material remaining on the screen. The minus fraction is the material passing through the screen.

†The plus fraction is retained unless disposal is requested.

ALS Minerals

FIRE ASSAY PROCEDURE

Au-ICP21 and Au-ICP22

FIRE ASSAY FUSION ICP-AES FINISH

SAMPLE DECOMPOSITION

Fire Assay Fusion (FA-FUSPG1 & FA-FUSPG2)

ANALYTICAL METHOD

Inductively Coupled Plasma – Atomic Emission Spectrometry (ICP-AES)

A prepared sample is fused with a mixture of lead oxide, sodium carbonate, borax, silica and other reagents as required, inquarted with 6 mg of gold-free silver and then cupelled to yield a precious metal bead.

The bead is digested in 0.5 mL dilute nitric acid in the microwave oven. 0.5 mL concentrated hydrochloric acid is then added and the bead is further digested in the microwave at a lower power setting. The digested solution is cooled, diluted to a total volume of 4 mL with de-mineralized water, and analyzed by inductively coupled plasma atomic emission spectrometry against matrix-matched standards.

METHOD CODE	ELEMENT	SYMBOL	UNITS	SAMPLE WEIGHT (G)	LOWER LIMIT	UPPER LIMIT	DEFAULT OVERLIMIT METHOD
Au-ICP21	Gold	Au	ppm	30	0.001	10	Au-AA25
Au-ICP22	Gold	Au	ppm	50	0.001	10	Au-AA26

ALS Minerals

FIRE ASSAY PROCEDURE

Au- SCR21

PRECIOUS METALS ANALYSIS – SCREEN METALLICS GOLD, DOUBLE MINUS

SAMPLE DECOMPOSITION

Fire Assay Fusion

ANALYTICAL METHOD

Gravimetric

1000 g of the final prepared pulp is passed through a 100 micron (Tyler 150 mesh) stainless steel screen to separate the oversize fractions. Any +100 micron material remaining on the screen is retained and analyzed in its entirety by fire assay with gravimetric finish and reported as the Au(+)fraction result. The –100 micron fraction is homogenized and two sub-samples are analyzed by fire assay with AAS finish (Au-AA25 and Au-AA25D). The average of the two AAS results is taken and reported as the Au (-) fraction result. All three values are used in calculating the combined gold content of the plus and minus fractions.

In the fire assay procedure, the sample is fused with a mixture of lead oxide, sodium carbonate, borax, silica and other reagents as required in order to produce a lead button. The lead button, containing the precious metals, is cupelled to remove the lead and the resulting precious metal bead is parted in dilute nitric acid, annealed and weighed to determine gold content.

The gold values for both the +100 and -100 micron fractions are reported together with the weight of each fraction as well as the calculated total gold content of the sample.

Calculations

$$\text{Au – avg} = \frac{\text{Au – (1)} + \text{Au –(2)}}{2}$$

$$\text{AuTotal (g / t)} = \frac{(\text{Au – avg (g/t)} \times \text{Wt.Minus(g)} \times 10^{-6}\ \text{t /g}) + (\text{Weight Au in Plus(mg)} \times 10^{-3}\ \text{g/mg})}{(\text{Wt.Minus(g)} + \text{Wt.Plus(g)}) \times 10\ \text{–6 t / g}}$$

Au- SCR21

FIRE ASSAY

Density = Specific gravity x Density of water (at temperature (t°C))

Factors for converting specific gravity to density are tabulated below:

DETERMINATION	DESCRIPTION	DETECTION LIMIT	UPPER LIMIT	UNITS
Au Total (+)(-) Combined	Total gold content of sample as determined by metallics calculation above.	0.05	0.05	ppm
Au (+) Fraction	Gold content of plus fraction determined by Au-GRA21.	0.05	0.05	ppm
Au (-) Fraction	Gold content of minus fraction. Reported as average of two subsamples.	0.05	0.05	ppm
Au-AA25	Gold content of first minus fraction subsample.	0.05	0.05	ppm
Au-AA25D	Gold content of second minus fraction subsample.	0.05	0.05	ppm
Au (+) mg	Weight of gold in plus fraction.	0.001	0.001	mg
WT. (+) Fraction Entire	Weight of plus fraction.	0.01	0.01	g
WT. (-) Fraction Entire	Weight of minus fraction.	0.1	0.1	g

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GEOCHEMICAL PROCEDURE

Au-TL43, Au-TL44

DETERMINATION OF TRACE LEVEL GOLD BY SOLVENT EXTRACTION – GRAPHITE FURNACE AAS OR ICPMS FINISH

SAMPLE DECOMPOSITION

Aqua regia gold digestion (GEO-AuAR01/02)

ANALYTICAL METHOD

Inductively coupled mass spectrometry (ICPMS) or Atomic absorption spectrometry (AAS)

A finely pulverised sample (25 – 50 g) is digested in a mixture of 3 parts hydrochloric acid and 1 part nitric acid (aqua regia). This acid mixture generates nascent chlorine and nitrosyl chloride, which will dissolve free gold and gold compounds such as calaverite, $AuTe_2$.

The dissolved gold is complexed and extracted with Kerosene/DBS and determined by graphite furnace AAS. Alternatively gold is determined by ICPMS directly from the digestion liquor. This method allows for the simple and economical addition of extra elements by running the digestion liquor through the ICPAES or ICPMS.

NOTE: Samples high in sulphide or carbon content may lead to low gold recoveries unless they are roasted prior to digestion.

METHOD CODE	ELEMENT	SYMBOL	UNITS	SAMPLE MASS (G)	LOWER LIMIT	UPPER LIMIT	DEFAULT OVERLIMIT METHOD
Au-TL43	Gold	Au	ppm	25	0.001	1	Au-OG43
Au-TL44	Gold	Au	ppm	50	0.001	1	Au-OG44

ALS Minerals

GEOCHEMICAL PROCEDURE

ME- MS41

ULTRA- TRACE LEVEL METHODS USING ICP- MS AND ICP- AES

SAMPLE DECOMPOSITION

Aqua Regia Digestion (GEO-AR01)

ANALYTICAL METHOD

Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES)
Inductively Coupled Plasma - Mass Spectrometry (ICP-MS)

A prepared sample (0.50 g) is digested with aqua regia in a graphite heating block. After cooling, the resulting solution is diluted to with deionized water, mixed and analyzed by inductively coupled plasma-atomic emission spectrometry. Following this analysis, the results are reviewed for high concentrations of bismuth, mercury, molybdenum, ment spectral interferences.

ELEMENT	SYMBOL	UNITS	LOWER LIMIT	UPPER LIMIT
Silver	Ag	ppm	0.01	100
Aluminum	Al	%	0.01	25
Arsenic	As	ppm	0.1	10 000
Gold	Au	ppm	0.2	25
Boron	B	ppm	10	10 000
Barium	Ba	ppm	10	10 000
Beryllium	Be	ppm	0.05	1 000
Bismuth	Bi	ppm	0.01	10 000
Calcium	Ca	%	0.01	25
Cadmium	Cd	ppm	0.01	1 000
Cerium	Ce	ppm	0.02	500
Cobalt	Co	ppm	0.1	10 000
Chromium	Cr	ppm	1	10 000
Cesium	Cs	ppm	0.05	500
Copper	Cu	ppm	0.2	10 000
Iron	Fe	%	0.01	50
Gallium	Ga	ppm	0.05	10 000
Germanium	Ge	ppm	0.05	500
Hafnium	Hf	ppm	0.02	500

ALS Minerals

ME- MS41

ELEMENT	SYMBOL	UNITS	LOWER LIMIT	UPPER LIMIT
Mercury	Hg	ppm	0.01	10 000
Indium	In	ppm	0.005	500
Potassium	K	%	0.01	10
Lanthanum	La	ppm	0.2	10 000
Lithium	Li	ppm	0.1	10 000
Magnesium	Mg	%	0.01	25
Manganese	Mn	ppm	5	50 000
Molybdenum	Mo	ppm	0.05	10 000
Sodium	Na	%	0.01	10
Niobium	Nb	ppm	0.05	500
Nickel	Ni	ppm	0.2	10 000
Phosphorus	P	ppm	10	10 000
Lead	Pb	ppm	0.2	10 000
Rubidium	Rb	ppm	0.1	10 000
Rhenium	Re	ppm	0.001	50
Sulphur	S	%	0.01	10
Antimony	Sb	ppm	0.05	10 000
Scandium	Sc	ppm	0.1	10 000
Selenium	Se	ppm	0.2	1 000
Tin	Sn	ppm	0.2	500
Strontium	Sr	ppm	0.2	10 000
Tantalum	Ta	ppm	0.01	500
Tellurium	Te	ppm	0.01	500
Thorium	Th	ppm	0.2	10000
Titanium	Ti	%	0.005	10
Thallium	Tl	ppm	0.02	10 000
Uranium	U	ppm	0.05	10 000
Vanadium	V	ppm	1	10 000
Tungsten	W	ppm	0.05	10 000
Yttrium	Y	ppm	0.05	500
Zinc	Zn	ppm	2	10 000
Zirconium	Zr	ppm	0.5	500

NOTE: In the majority of geological matrices, data reported from an aqua regia leach should be considered as representing only the leachable portion of the particular analyte.

ALS Minerals

GEOCHEMICAL PROCEDURE

ME-ICP61

TRACE LEVEL METHODS USING CONVENTIONAL ICP- AES ANALYSIS

SAMPLE DECOMPOSITION

HNO_3 -$HClO_4$ -HF-HCl digestion, HCl Leach (GEO-4ACID)

ANALYTICAL METHOD

Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP - AES)

A prepared sample (0.25 g) is digested with perchloric, nitric, hydrofluoric and hydrochloric acids. The residue is topped up with dilute hydrochloric acid and the resulting solution is analyzed by inductively coupled plasma-atomic emission spectrometry. Results are corrected for spectral interelement interferences.

NOTE: Four acid digestions are able to dissolve most minerals; however, although the term "*near- total*" is used, depending on the sample matrix, not all elements are quantitatively extracted.

ELEMENT	SYMBOL	UNITS	LOWER LIMIT	UPPER LIMIT	DEFAULT OVER-LIMIT METHOD
Silver	Ag	ppm	0.5	100	Ag-OG62
Aluminum	Al	%	0.01	50	
Arsenic	As	ppm	5	10,000	
Barium	Ba	ppm	10	10,000	
Beryllium	Be	ppm	0.5	1,000	
Bismuth	Bi	ppm	2	10,000	
Calcium	Ca	%	0.01	50	
Cadmium	Cd	ppm	0.5	500	
Cobalt	Co	ppm	1	10,000	Co-OG62
Chromium	Cr	ppm	1	10,000	
Copper	Cu	ppm	1	10,000	Cu-OG62
Iron	Fe	%	0.01	50	
Gallium	Ga	ppm	10	10,000	
Potassium	K	%	0.01	10	
Lanthanum	La	ppm	10	10,000	
Magnesium	Mg	%	0.01	50	
Manganese	Mn	ppm	5	10,0000	

ME-ICP61

ELEMENT	SYMBOL	UNITS	LOWER LIMIT	UPPER LIMIT	DEFAULT OVER-LIMIT METHOD
Molybdenum	Mo	ppm	1	10,000	Mo-OG62
Sodium	Na	%	0.01	10	
Nickel	Ni	ppm	1	10,000	Ni-OG62
Phosphorus	P	ppm	10	10,000	
Lead	Pb	ppm	2	10,000	Pb-OG62
Sulphur	S	%	0.01	10	
Antimony	Sb	ppm	5	10,000	
Scandium	Sc	ppm	1	10,000	
Strontium	Sr	ppm	1	10,000	
Thorium	Th	ppm	20	10,000	
Titanium	Ti	%	0.01	10	
Thallium	Tl	ppm	10	10,000	
Uranium	U	ppm	10	10,000	
Vanadium	V	ppm	1	10,000	
Tungsten	W	ppm	10	10,000	
Zinc	Zn	ppm	2	10,000	Zn-OG62

ELEMENTS LISTED BELOW ARE AVAILABLE UPON REQUEST

ELEMENT	SYMBOL	UNITS	LOWER LIMIT	UPPER LIMIT	DEFAULT OVER-LIMIT METHOD
Lithium	Li	ppm	10	10,000	
Niobium	Nb	ppm	5	2,000	
Rubidium	Rb	ppm	10	10,000	
Selenium	Se	ppm	10	1,000	
Tin	Sn	ppm	10	10,000	
Tantalum	Ta	ppm	10	10,000	
Tellurium	Te	ppm	10	10,000	
Yttrium	Y	ppm	10	10,000	
Zirconium	Zr	ppm	5	500	

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GEOCHEMICAL PROCEDURE

ME- MS61

ULTRA- TRACE LEVEL METHOD USING ICP- MS AND ICP- AES

SAMPLE DECOMPOSITION

HF-HNO_3 -$HClO_4$ acid digestion, HCl leach (GEO-4A01)

ANALYTICAL METHOD

Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES)
Inductively Coupled Plasma - Mass Spectrometry (ICP-MS)

A prepared sample (0.25 g) is digested with perchloric, nitric, hydrofluoric and hydrochloric acids. The residue is topped up with dilute hydrochloric acid and analyzed by inductively coupled plasma- atomic emission spectrometry. Following this analysis, the results are reviewed for high concentrations of bismuth, mercury, molybdenum, silver and tungsten and diluted accordingly. Samples meeting this criterion are then analyzed by inductively coupled plasma-mass spectrometry. Results are corrected for spectral interelement interferences.

NOTE: Four acid digestions are able to dissolve most minerals; however, although the term "*near- total*" is used, depending on the sample matrix, not all elements are quantitatively extracted.

ELEMENT	SYMBOL	UNITS	LOWER LIMIT	UPPER LIMIT
Silver	Ag	ppm	0.01	100
Aluminum	Al	%	0.01	50
Arsenic	As	ppm	0.2	10,000
Barium	Ba	ppm	10	10,000
Beryllium	Be	ppm	0.05	1,000
Bismuth	Bi	ppm	0.01	10,000
Calcium	Ca	%	0.01	50
Cadmium	Cd	ppm	0.02	1,000
Cerium	Ce	ppm	0.01	500
Cobalt	Co	ppm	0.1	10,000
Chromium	Cr	ppm	1	10,000
Cesium	Cs	ppm	0.05	500
Copper	Cu	ppm	0.2	10,000
Iron	Fe	%	0.01	50
Gallium	Ga	ppm	0.05	10,000
Germanium	Ge	ppm	0.05	500
Hafnium	Hf	ppm	0.1	500

ALS Minerals

ME- MS61

ELEMENT	SYMBOL	UNITS	LOWER LIMIT	UPPER LIMIT
Indium	In	ppm	0.005	500
Potassium	K	%	0.01	10
Lanthanum	La	ppm	0.5	10,000
Lithium	Li	ppm	0.2	10,000
Magnesium	Mg	%	0.01	50
Manganese	Mn	ppm	5	100,000
Molybdenum	Mo	ppm	0.05	10,000
Sodium	Na	%	0.01	10
Niobium	Nb	ppm	0.1	500
Nickel	Ni	ppm	0.2	10,000
Phosphorous	P	ppm	10	10,000
Lead	Pb	ppm	0.5	10,000
Rubidium	Rb	ppm	0.1	10,000
Rhenium	Re	ppm	0.002	50
Sulphur	S	%	0.01	10
Antimony	Sb	ppm	0.05	10,000
Scandium	Sc	ppm	0.1	10,000
Selenium	Se	ppm	1	1,000
Tin	Sn	ppm	0.2	500
Strontium	Sr	ppm	0.2	10,000
Tantalum	Ta	ppm	0.05	100
Tellurium	Te	ppm	0.05	500
Thorium	Th	ppm	0.2	10,000
Titanium	Ti	%	0.005	10
Thallium	Tl	ppm	0.02	10,000
Uranium	U	ppm	0.1	10,000
Vanadium	V	ppm	1	10 000
Tungsten	W	ppm	0.1	10,000
Yttrium	Y	ppm	0.1	500
Zinc	Zn	ppm	2	10,000
Zirconium	Zr	ppm	0.5	500

ALS Minerals

ASSAY PROCEDURE

ME- OG62

ORE GRADE ELEMENTS BY FOUR ACID DIGESTION USING CONVENTIONAL ICP- AES ANALYSIS

SAMPLE DECOMPOSITION

HNO_3 -$HClO_4$ -HF-HCl Digestion (ASY-4A01)

ANALYTICAL METHOD

Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP - AES)*

Assays for the evaluation of ores and high-grade materials are optimized for accuracy and precision at high concentrations. Ultra high concentration samples (> 15 -20%) may require the use of methods such as titrimetric and gravimetric analysis, in order to achieve maximum accuracy.

A prepared sample is digested with nitric, perchloric, hydrofluoric, and hydrochloric acids, and then evaporated to incipient dryness. Hydrochloric acid and de-ionized water is added for further digestion, and the sample is heated for an additional allotted time. The sample is cooled to room temperature and transferred to a volumetric flask (100 mL). The resulting solution is diluted to volume with de-ionized water, homogenized and the solution is analyzed by inductively coupled plasma - atomic emission spectroscopy or by atomic absorption spectrometry.

***NOTE:** ICP-AES is the default finish technique for ME-OG62. However, under some conditions and at the discretion of the laboratory an AA finish may be substituted. The certificate will clearly reflect which instrument finish was used.

ELEMENT	SYMBOL	UNITS	LOWER LIMIT	UPPER LIMIT
Silver	Ag	ppm	1	1,500
Arsenic	As	%	0.01	30
Bismuth	Bi	%	0.01	30
Cadmium	Cd	%	0.0001	10
Cobalt	Co	%	0.001	20
Chromium	Cr	%	0.002	30
Copper	Cu	%	0.001	40
Iron	Fe	%	0.01	100
Manganese	Mn	%	0.01	50
Molybdenum	Mo	%	0.001	10
Nickel	Ni	%	0.001	30
Lead	Pb	%	0.001	20
Zinc	Zn	%	0.001	30

ALS Minerals

Technical Note

LOW LEVEL SAMPLE PREPARATION PROCEDURES

New facilities and procedures with Super Trace detection limits

Recent upgrades at the Townsville and Orange laboratories as well as new sample preparation facilities in Darwin and Perth now provide dedicated low-level soil and stream sediment preparation areas and equipment to ensure a contamination free environment for sieving and pulverisation of geochemical, soil, sediment and lag samples.

ALS Minerals recommends carrying out an orientation survey to optimise sampling parameters such as soil horizon, size fraction, preparation, digestion and analysis.

Unless otherwise specified by its clients, ALS Minerals will adopt the following procedures when preparing soil, sediment and lag samples:

- Any samples submitted to the laboratory identified as soil, stream sediment or lag will be logged under a separate workorder if submitted with other sample types
- Samples will be dried either in the paper packets they are received in or transferred to dedicated stainless steel or aluminium trays
- ALS Minerals recommends sieving of samples instead of pulverising to reduce the possibility of steel contamination inherent with pulverising bowls. Samples can be sieved in the field, or ALS Minerals can provide this service in our dedicated low level sample preparation areas. A range of sieve sizes is available depending on individual client requirements. Where sample sieving is required to a minus 80 mesh or finer fraction, samples will not be pulverised and the oversize fraction will automatically be retained and stored
- Where pulverising is required for bulk soils or fractions coarser than 80 mesh, a maximum 250g split will be finely pulverised with the remaining unpulverised portion being retained and stored. All bulk residues will be stored in sealed plastic bags and in a designated soil/sediment storage area
- Samples with significant clay content can be problematic when pulverising; and bowl cleaning between each sample may not be effective with vacuum and compressed air. In such cases a barren wash containing high silica content will be used between each sample
- Dedicated 400cc capacity low chromium steel bowls will be used for sample pulverisation. Pulverising any sample in a steel bowl has the potential to contribute trace levels of certain metals to the sample due to the composition of the steel bowls and their inherent wear rates.

Recommended analysis procedures include aqua regia digestion with analysis of gold by method Au-ST43 and base metals by method ME-MS41L. Both methods can be provided in package ST43L-PKG:

ANALYTICAL METHODS

Detection limits in (ppm) unless otherwise stated

Analytes			Method Description	Method Code
Au (0.0001)			Up to a 25g, aqua regia extraction, with ICPMS finish	ST43L-PKG
Ag (0.002)	**Hf** (0.02)	**Sb** (0.005)	Aqua regia digestion, ICPAES and ICPMS finish, providing Super Trace detection limits	
Al (0.01%)	**Hg** (0.005)	**Sc** (0.1)		
As (0.02)	**In** (0.005)	**Se** (0.1)		
B (10)	**K** (0.01%)	**Sn** (0.2)		
Ba (0.5)	**La** (0.2)	**Sr** (0.2)		
Be (0.05)	**Li** (0.1)	**Ta** (0.01)		
Bi (0.01)	**Mg** (0.01%)	**Te** (0.01)		
Ca (0.01%)	**Mn** (1)	**Th** (0.1)		
Cd (0.01)	**Mo** (0.01)	**Ti** (0.001%)		
Ce (0.02)	**Na** (0.01%)	**Tl** (0.02)		
Co (0.1)	**Nb** (0.05)	**U** (0.05)		
Cr (0.5)	**Ni** (0.1)	**V** (1)		
Cs (0.05)	**P** (10)	**W** (0.01)		
Cu (0.01)	**Pb** (0.01)	**Y** (0.05)		
Fe (0.01%)	**Rb** (0.1)	**Zn** (0.1)		
Ga (0.05)	**Re** (0.001)	**Zr** (0.5)		
Ge (0.05)	**S** (0.01%)			

A range of other methods is also available. To discuss your soil sampling program and analytical requirements, please contact your nearest ALS Minerals laboratory or email alsminerals.brisbane@alsglobal.com or alsminerals.perth@alsglobal.com

ALS Canada Ltd.
2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218
www.alsglobal.com/geochemistry

To: DAVID PIGGIN
5- 2363 DEMAMIEL DRIVE
SOOKE BC V9Z 1K3

Finalized Date: 17- NOV- 2018
This copy reported on
19- NOV- 2018
Account: DAVIPI

CERTIFICATE VA18271408

Project: BARRIERE RIDGE

This report is for 6 Rock samples submitted to our lab in Vancouver, BC, Canada on 26- OCT- 2018.

The following have access to data associated with this certificate:

DAVID PIGGIN		

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI- 21	Received Sample Weight
LOG- 22	Sample login - Rcd w/o BarCode
CRU- 31	Fine crushing - 70% <2mm
SPL- 21	Split sample - riffle splitter
PUL- 31	Pulverize split to 85% <75 um

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	
ME- MS61	48 element four acid ICP- MS	
ME- OG62	Ore Grade Elements - Four Acid	ICP- AES
Zn- OG62	Ore Grade Zn - Four Acid	
Au- ICP21	Au 30g FA ICP- AES Finish	ICP- AES

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:
Colin Ramshaw, Vancouver Laboratory Manager

ALS Canada Ltd.
2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218
www.alsglobal.com/geochemistry

To: DAVID PIGGIN
5- 2363 DEMAMIEL DRIVE
SOOKE BC V9Z 1K3

Finalized Date: 17- NOV- 2018
Account: DAVIPI

Project: BARRIERE RIDGE

CERTIFICATE OF ANALYSIS VA18271408

Sample Description	Method / Analyte / Units / LOD	WEI- 21 Recvd Wt. kg 0.02	Au- ICP21 Au ppm 0.001	ME- MS61 Ag ppm 0.01	ME- MS61 Al % 0.01	ME- MS61 As ppm 0.2	ME- MS61 Ba ppm 10	ME- MS61 Be ppm 0.05	ME- MS61 Bi ppm 0.01	ME- MS61 Ca % 0.01	ME- MS61 Cd ppm 0.02	ME- MS61 Ce ppm 0.01	ME- MS61 Co ppm 0.1	ME- MS61 Cr ppm 1	ME- MS61 Cs ppm 0.05	ME- MS61 Cu ppm 0.2
10E41505_BR18R99A		1.66	0.013	13.35	0.04	8.1	10	0.11	1.79	24.4	3.72	2.71	1.6	2	<0.05	348
140E41506_BR18R7Q		1.78	0.001	0.11	0.14	5.0	40	0.09	0.09	15.45	0.30	1.95	2.5	12	0.10	5.2
140E41507_BR18R10A		1.60	0.018	28.8	0.04	1.0	10	0.06	5.71	5.63	0.40	0.56	1.1	21	0.05	3.8
140E41508_BR18R9		1.76	0.012	11.45	0.10	7.4	30	0.17	4.94	22.5	125.5	1.50	7.2	5	0.07	90.5
140E41509_BR18R9A		1.30	<0.001	0.43	0.16	1.1	50	0.14	0.85	20.1	3.73	1.39	2.2	8	0.09	5.2
140E41510_BR18R9B		1.30	0.001	3.76	0.11	2.3	40	0.14	3.62	18.30	3.91	1.18	2.3	9	0.07	2.5

***** See Appendix Page for comments regarding this certificate *****

ALS Canada Ltd.
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North Vancouver BC V7H 0A7
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www.alsglobal.com/geochemistry

To: DAVID PIGGIN
5- 2363 DEMAMIEL DRIVE
SOOKE BC V9Z 1K3

Finalized Date: 17- NOV- 2018
Account: DAVIPI

Project: BARRIERE RIDGE

CERTIFICATE OF ANALYSIS VA18271408

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Fe	Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P
	Units	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm
	LOD	0.01	0.05	0.05	0.1	0.005	0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10
10E41505_BR18R99A		0.53	0.20	0.10	<0.1	0.028	0.01	1.4	2.1	9.43	263	0.40	0.01	<0.1	5.0	20
140E41506_BR18R7Q		1.16	0.45	0.06	<0.1	<0.005	0.05	0.9	2.3	7.87	315	0.91	0.01	0.2	11.7	50
140E41507_BR18R10A		0.59	0.34	<0.05	<0.1	0.012	0.01	<0.5	1.3	1.54	97	1.70	0.01	0.1	2.7	10
140E41508_BR18R9		1.19	0.54	0.05	<0.1	0.263	0.04	0.8	4.3	10.20	344	1.33	0.01	0.2	12.5	30
140E41509_BR18R9A		0.97	0.53	0.06	<0.1	0.010	0.06	0.8	3.7	8.85	282	2.34	0.01	0.3	9.0	50
140E41510_BR18R9B		0.93	0.42	0.05	<0.1	0.011	0.04	0.7	4.0	8.06	269	1.80	0.01	0.2	9.2	30

***** See Appendix Page for comments regarding this certificate *****

ALS Canada Ltd.
2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218
www.alsglobal.com/geochemistry

To: DAVID PIGGIN
5- 2363 DEMAMIEL DRIVE
SOOKE BC V9Z 1K3

Finalized Date: 17- NOV- 2018
Account: DAVIPI

Project: BARRIERE RIDGE

CERTIFICATE OF ANALYSIS VA18271408

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U
	Units	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
	LOD	0.5	0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.01	0.005	0.02	0.1
10E41505_BR18R99A		676	0.5	<0.002	<0.01	125.0	0.6	1	<0.2	706	<0.05	0.14	0.03	<0.005	<0.02	1.1
140E41506_BR18R7Q		16.1	1.9	<0.002	<0.01	3.57	1.0	1	<0.2	231	<0.05	<0.05	0.10	0.011	0.03	0.5
140E41507_BR18R10A		4020	0.5	<0.002	0.04	6.35	0.1	2	0.2	137.0	<0.05	2.73	0.02	<0.005	<0.02	0.2
140E41508_BR18R9		6280	1.5	<0.002	0.03	42.8	0.4	3	0.2	396	<0.05	1.30	0.04	0.012	0.02	1.2
140E41509_BR18R9A		170.5	2.3	<0.002	<0.01	3.32	0.5	1	0.2	408	<0.05	0.06	0.07	0.013	0.03	1.3
140E41510_BR18R9B		1700	1.7	<0.002	0.01	3.68	0.4	1	<0.2	342	<0.05	0.31	0.04	0.011	0.02	0.9

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CERTIFICATE OF ANALYSIS VA18271408

Sample Description	Method	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	Zn- OG62
	Analyte	V	W	Y	Zn	Zr	Zn
	Units	ppm	ppm	ppm	ppm	ppm	%
	LOD	1	0.1	0.1	2	0.5	0.001
10E41505_BR18R99A		7	0.4	1.7	573	<0.5	
140E41506_BR18R7Q		9	0.3	1.1	73	1.4	
140E41507_BR18R10A		3	0.5	0.2	31	0.8	
140E41508_BR18R9		9	0.3	0.5	>10000	1.4	2.03
140E41509_BR18R9A		8	0.4	0.6	661	1.7	
140E41510_BR18R9B		8	0.3	0.5	904	1.3	

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CERTIFICATE OF ANALYSIS VA18271408

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

Applies to Method: REE's may not be totally soluble in this method.
ME- MS61

LABORATORY ADDRESSES

Applies to Method: Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

Au- ICP21	CRU- 31	LOG- 22	ME- MS61
ME- OG62	PUL- 31	SPL- 21	WEI- 21
Zn- OG62			