120416

Geophysical Survey on Sunshine Creek

Whitehorse Mining District

NTS: 115J/15
Latitude: 62.77028° N Longitude: -138.64355° W

Lease: IW00679

Owner: Jeff Sedore - 100%

Work Performed:
Resistivity/IP Survey: 11 September, 2019

Date of Report: February 22, 2019

Author of Report: Allison Feduk

Summary

This report summarizes two ground geophysical surveys completed by GroundTruth Exploration during the field season of 2019 on Sunshine Creek. The geophysical surveys, on placer lease IW00679, traverse perpendicularly across the valley to highlight the bedrock structure for placer target zones.

The ground geophysical survey included two high resolution DC resistivity and induced polarization surveys. Results from the 2019 resistivity survey has shown a contrast at the bedrock interface. The induced polarization survey shows contrasting zones of chargeability across the valley.

Several gold-in-soil anomalies have been discovered within the vicinity of Sunshine Creek, indicating placer gold deposition in the valley. The 2018 RAB drilling program has confirmed the presence of placer gold on this creek.

Box 70, DAWSON, YT
Y0B 1G0

Table of Contents

Table of Figures

1.0 Introduction

The geophysical surveys undertaken by GroundTruth Exploration Inc., of Dawson City, YT, was conducted on placer prospecting lease IW00679, located in the Whitehorse Mining District. The first RES/IP profile was carried out with 2 m electrode spacing, resulting in a 166 m long line, the other profile consisted of 4 m electrode spacing resulting in a 332 m long line. The two profiles were overlapping to determine the difference between the 2 m and 4 m electrode spacing. The surveys were completed on the 11th of September 2019 and were intended to measure the depth to bedrock and to map underlying lithology thickness to determine if any paleochannels favorable to gold deposition could be detected.

2.0 Previous Investigations

There has been no previous work reported on IW00679. Although there has been a moderate amount of work performed on both Sunshine and Isaac Creeks including resistivity and induced polarization surveys performed in 2014, 2016, 2017 and 2018, ground magnetic and ground penetrating radar surveys executed in 2015 and 2016. A ten-hole drilling program was carried out on Sunshine Creek in 2018.

3.0 Location and Access

The prospecting lease is located approximately 148 km south southeast of Dawson City located within the Yukon River South watershed in west-central Yukon Territory. The targets are centered at latitude 62.77028° N and longitude -138.64355° W and located on NTS map sheet 115J/15 (Figure 1). The lease is accessible by helicopter year-round and can be accessed in the winter by snowmobile via the Yukon River which flows approximately 5 km north of the property.

4.0 Property

IW00679 – Jeff Sedore - 100% - expiry February 28, 2020

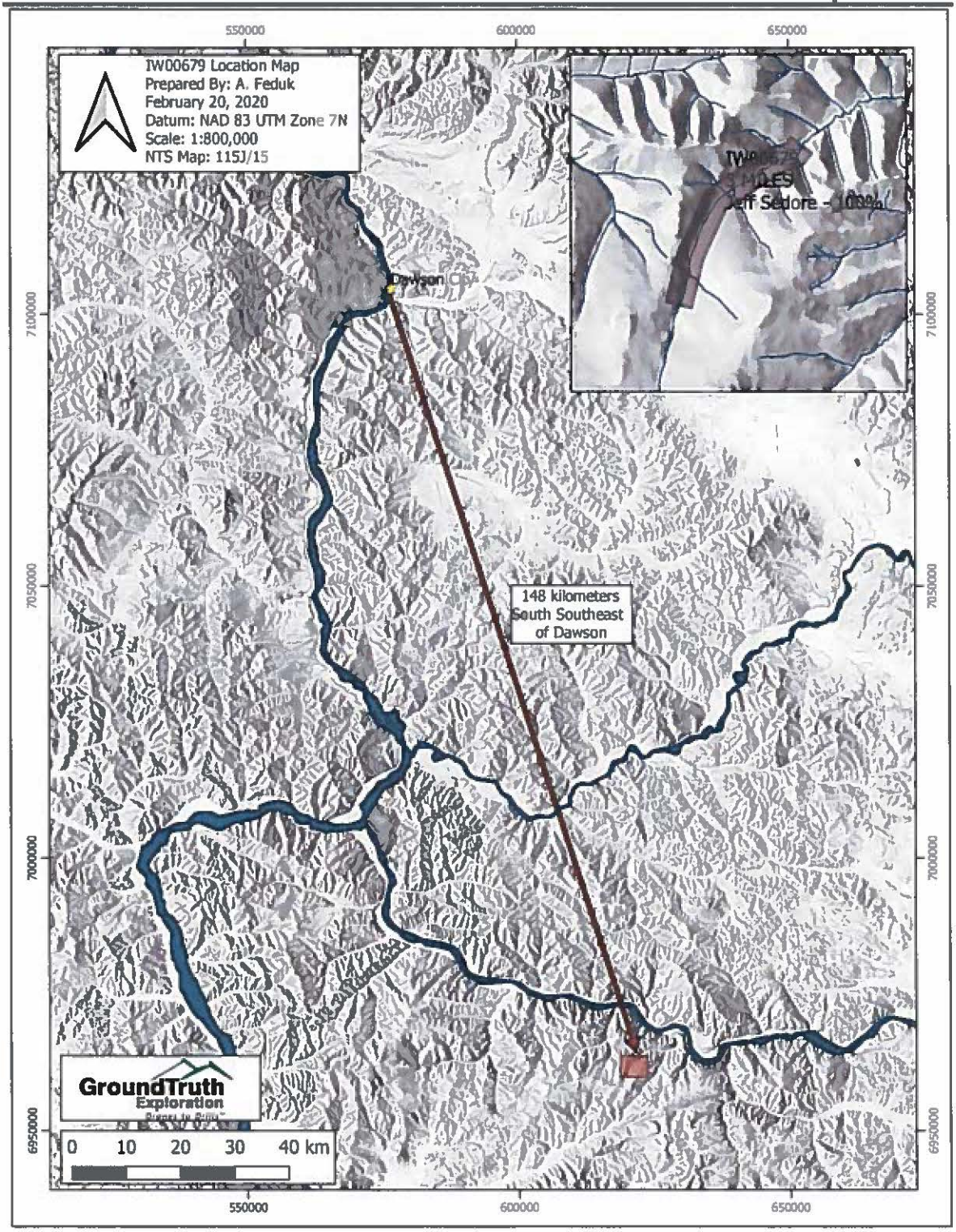

Figure 1: Property Location

5.0 Physiography and Climate

Sunshine Creek is a modest sized creek flowing north to east into Isaac Creek which is a tributary of the Yukon River. The landscape is composed broad valleys bordered by moderately sloped, tree-covered hills ranging in elevations from 701 m to 1081 m. The lease experiences typical climatic conditions for central Yukon Territory with short, warm and dry summers and cold winters. Temperatures range from 0°C to -50°C in the winter and 0°C to +30°C in the summer. The property lies within Canada's discontinuous permafrost zone. Most of the valley bottoms in this creek are filled with permafrost.

6.0 Geology

6.1 Regional Geology

The lease is situated in the Yukon-Tanana Terrane (YTT). The YTT is a late Devonian to middle Mississippian continental magmatic arc extending from northern British Columbia into west-central Yukon and eastern Alaska and is bounded to the northeast by the Tintina fault and to the south-west by the Denali fault (Colpron et al., 2006).

The YTT is composed of four main assemblages including the Snowcap, Finlayson, Klondike and Klinkit (Colpron et al. 2006) intruded by the Dawson Range batholith (phase of the Whitehorse Suite), Prospector Mountain plutonic suite and Casino plutonic suites (Mortensen et al., 2010).

"The Snowcap assemblage (PDS1) forms the base of the YTT consisting of quartzite, psammite, pelite and marble with minor greenstone and amphibolite. The Finlayson assemblage (DMF1) is composed of amphibolite, garnet amphibolite and schist. The Klondike assemblage (PK1, PK2) consists of muscovite-chlorite quartz phyllite, quartz-muscovite-chlorite schist, micaceous quartzite, psammite, phyllonite and schist. The Whitehorse Suite (mKqW, mKgW), a phase of the Dawson Range Batholith, consists of biotite quartz monzonite, biotite granite, leucogranite, monzogranite, granodiorite, diorite, granite and tonalite." (Ryan et al., 2013). The Klinkit (CK1) is composed of mafic to intermediate metavolcaniclastic and metavolcanic rocks, with minor limestone and conglomerate (Colpron et al., 2006; Roots et al, 2004).

6.2 Property Geology

The southern portion of this lease is underlain by Cretaceous plutonic rocks of the Whitehorse Suite (mKgW) composed of biotite-hornblende granodiorite, hornblende quartz diorite, hornblende diorite, tonalite and granite (Ryan, et al., 2013). The northern portion is underlain by Devonian metamorphic rocks of the Snowcap Assemblage (PDS1) consisting of quartzite, psammite, pelite, marble and schist with minor greenstone and amphibolite (Ryan et al., 2013) (Figure 2).

This lease is located in an unglaciated area, therefore placer gold should be located close to the hard rock sources.

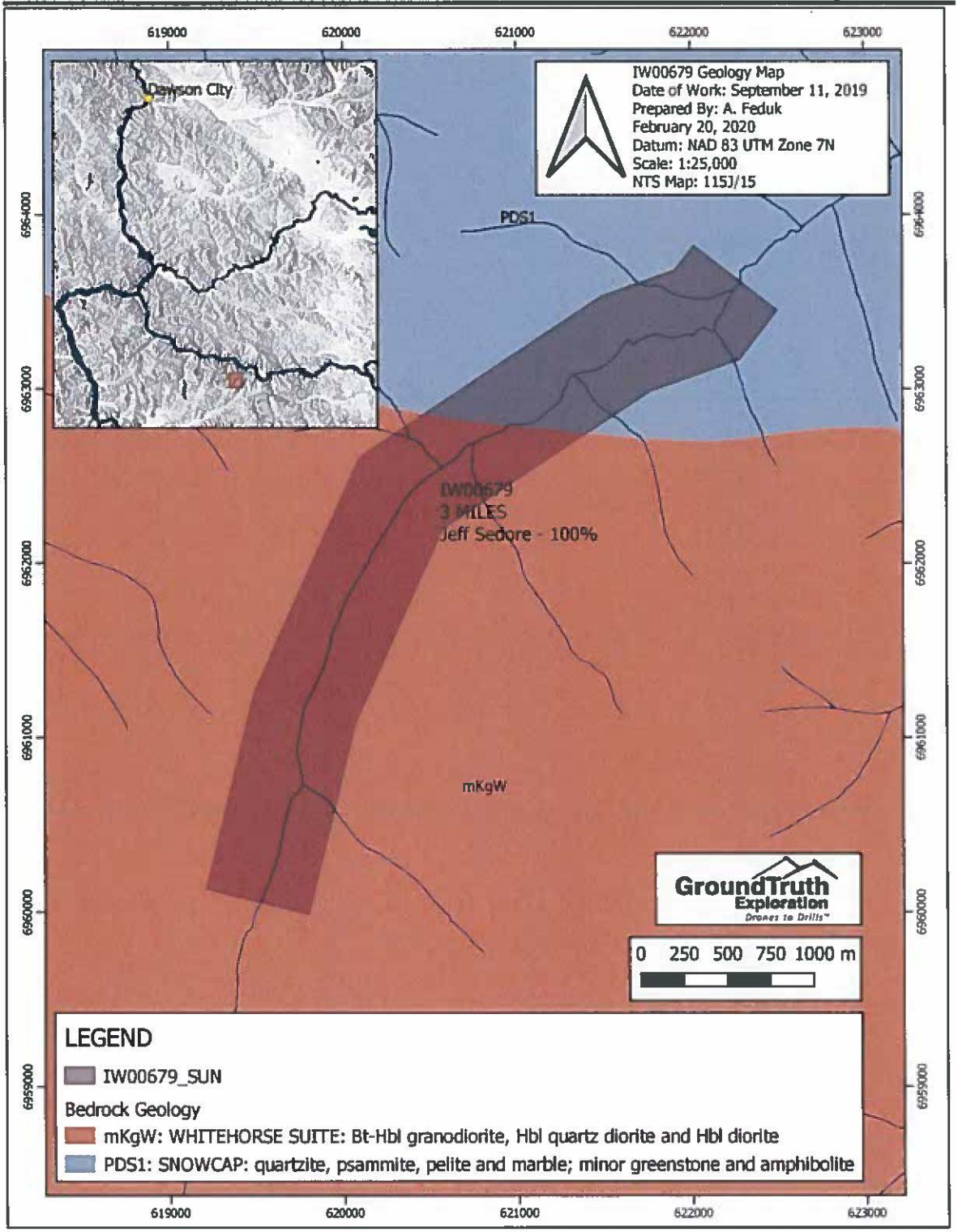

Figure 2: Property Geology

7.0 Resistivity and Induced Polarization Survey

7.1 Work Performed

The DC resistivity and induced polarization (RES/IP) surveys were conducted on the 11th of September 2019, on lease IW00679 (Figure 5). The goal of these surveys is to define the fluvial deposits such as muck, sand, and gravel, and define important contacts such as the permafrost table and bedrock surface.

Survey traverse SUNIP19-01 is composed of 84 electrodes spaced at 2 m resulting in a total line length of 166 ground meters and a potential depth of investigation of approximately 15.3 m (Figure 3, Figure 6). SUNIP19-02 is also composed of 84 electrodes but is spaced at 4 m resulting in a total line length of 332 ground meters and a potential depth of investigation of approximately 30.6 m (Figure 4, Figure 7). These investigation depths occur between electrodes 20 and 63.

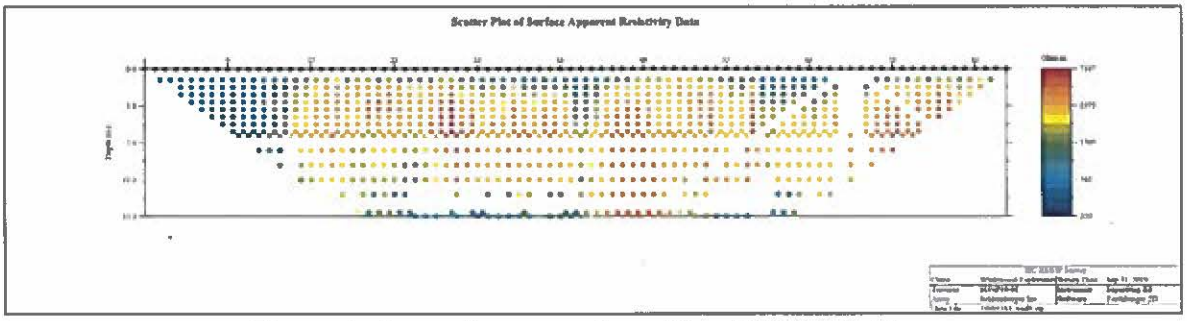

Figure 3: Array Geometry from Line SUNIP19-01

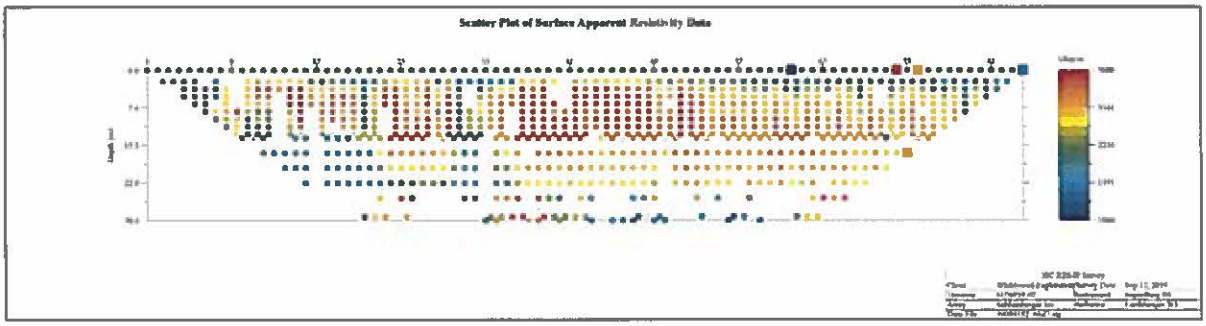

Figure 4: Array Geometry from Line SUNIP19-02

The RES/IP surveys are done using Advanced Geoscience's SuperSting high-resolution resistivity meter and passive cables. A modified Schlumberger Inverse array was used on all survey lines. This array is a sounding array optimized to delineate horizontal structures such as bedrock contacts and lithological units, has the best

overall signal-to-noise ratio and the most lateral coverage. It is an ideal array for finding depths to stratigraphic layers such as muck, sand, gravel, and bedrock.

The traverse location was surveyed with a differential GPS unit capable of sub-meter accuracy. This data was used to both map the traverses and to create the terrain file that models elevation within the resistivity processing.

7.2 Operating Procedure

- A crew of 4 is deployed to run survey.
- The traverse midpoint is located and the line orientation is sighted using a DGPS.
- Minimal brush is cut along line to place pickets and set up equipment.
- The crew places electrodes at either 2 or 4 m spacing using a measuring tape.
- Electrodes are hammered to a depth of either 20 cm or 40 cm (10% of electrode spacing) and soaked with Calcium Chloride solution (25%).
- Cables are laid and attached to the electrodes.
- Contact resistance test (CRT) is conducted.
- Additional Calcium Chloride (25% solution) and/or electrodes are added to electrodes that have CR > 4k ohms. The CRT is re-read and the process continues until results are satisfactory.
- The resistivity survey is read.
- The operator surveys the traverse using DGPS and places marked pickets every 10 electrodes.

7.3 Data Processing

Immediately after each survey is completed in the field, the data measurements are downloaded and reviewed for integrity. RES/IP datasets are processed daily by the lead operator using Res2DInv software created by M. Loke (2014). Noisy data is removed and the cleaned dataset is inverted. Terrain correction to the inversion mesh is applied from topographic measurements collected in the field using a differential GPS (DGPS). All raw data from the DGPS and SuperSting are archived for future consultation.

7.4 Inversion

The resistivity and induced polarization data from each traverse are inverted using the processed data set in Res2dInv. The data is inverted using a smoothness-constrained inversion algorithm that utilizes a model discretized without an extended grid and using severe reduction of side block effects. After the data sets are filtered, root-mean-square measurements of iteration model-fits are assessed to determine the most adequately fitting iteration that fits the measured data without overfitting the measurement noise. An appropriate color scale for each calculated parameter is then chosen to display the results (i.e. a logarithmic scale for resistivity and a linear scale for chargeability).

7.5 Results

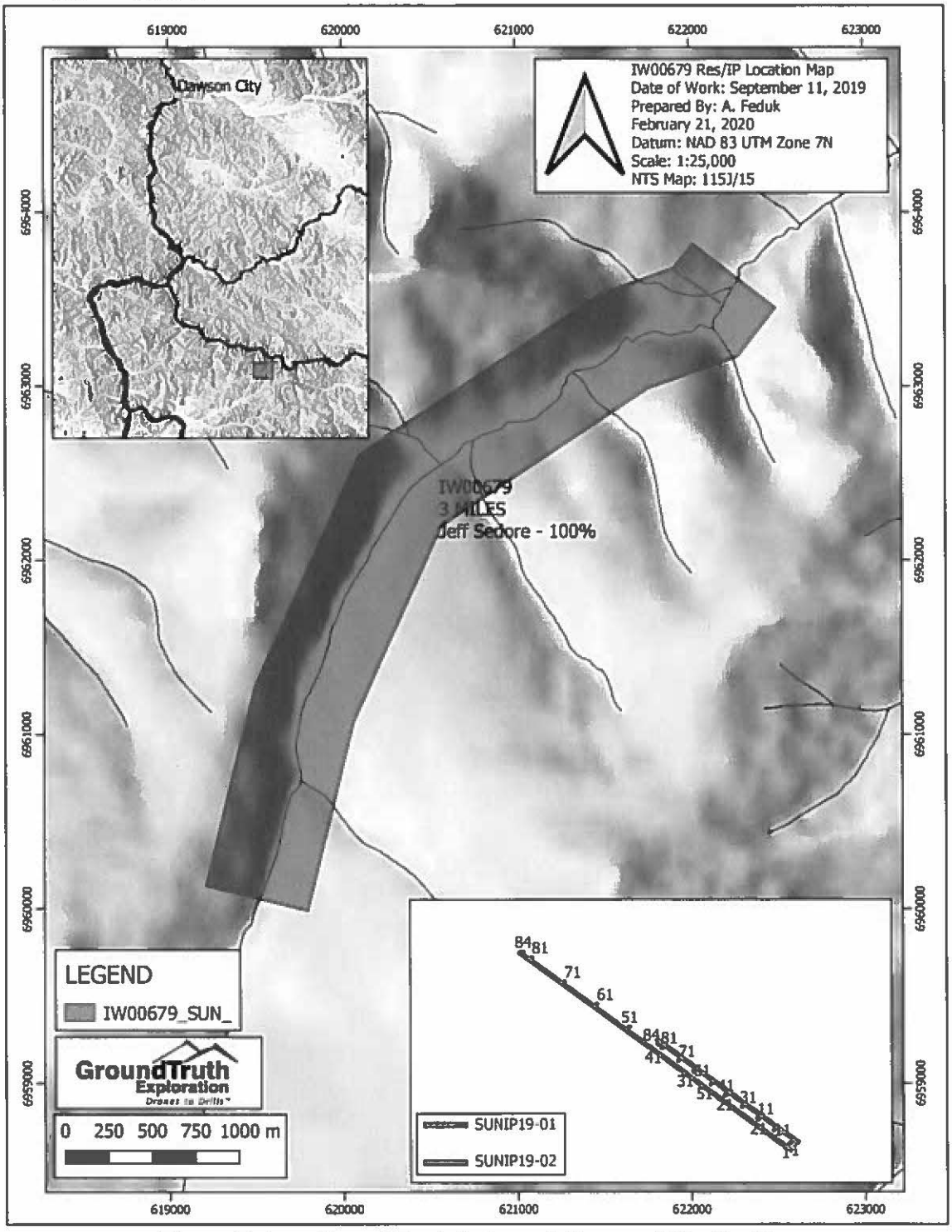

Figure 5: Location of Resistivity and Chargeability Profiles

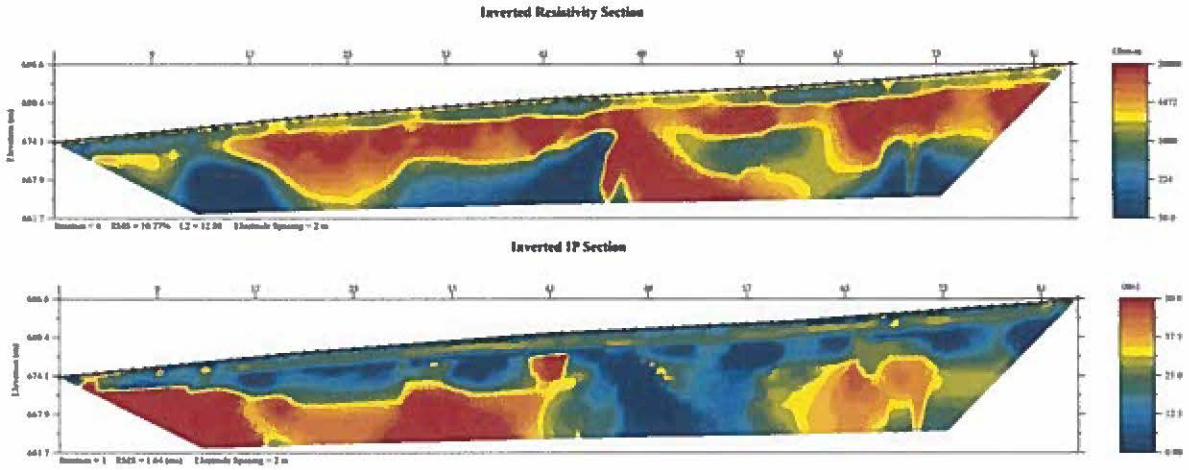

Figure 6: Resistivity and Chargeability 2D Inversion Profiles of SUNIP19-01

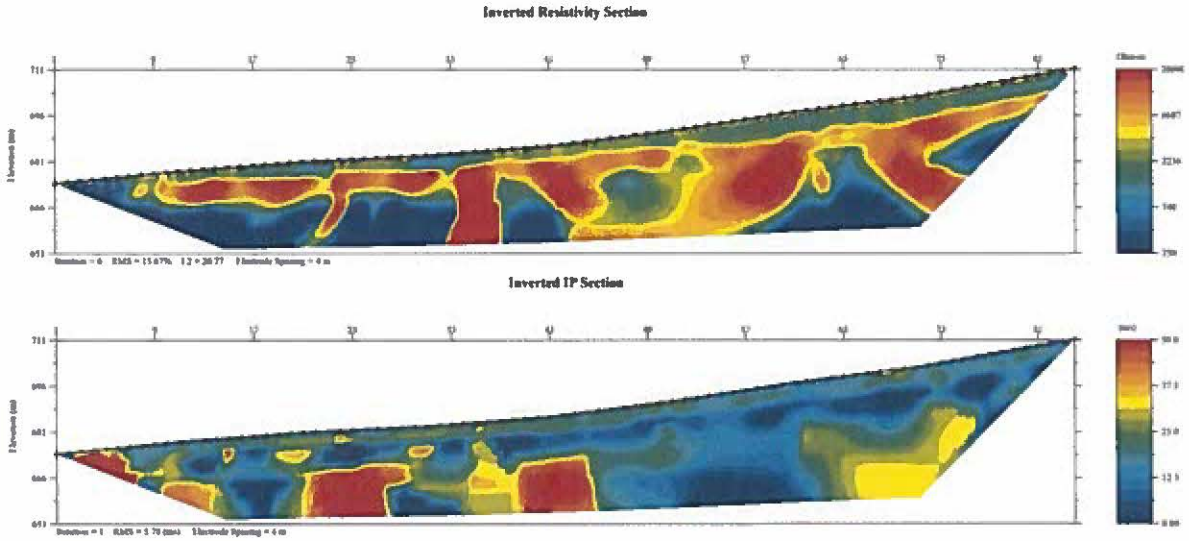

Figure 7: Resistivity and Chargeability 2D Inversion Profiles of SUNIP19-02

8.0 Discussion and Interpretation

The resistivity inversion profile shows a distinct resistivity contrast at the interpreted bedrock boundary, with a moderate to high resistivity, consistent with the geology of the area (Figure 2). The depth to the interpreted bedrock interface is between 1.5 m to 4.2 m on SUNIP19-01 (Figure 8) and between 1.5 m to 11.25 m on SUNIP19-02 (Figure 9). The interpreted bedrock depth increases to the north west, as seen on SUNIP19-02. A moderate resistivity is interpreted as coarse grained fluvial deposits, a target for placer gold at the bedrock interface. The low resistivity seen on the southeast sides of the profiles are interpreted as saturated fine-grained fluvial deposits and/or permafrost.

The chargeability section shows small changes in magnitude, associated with frozen ground near the surface in the area. The areas of the profiles that have a high IP effect and low resistivity are associated with bedrock that is potentially sulfide rich and vice versa for the bedrock that is sulfide poor.

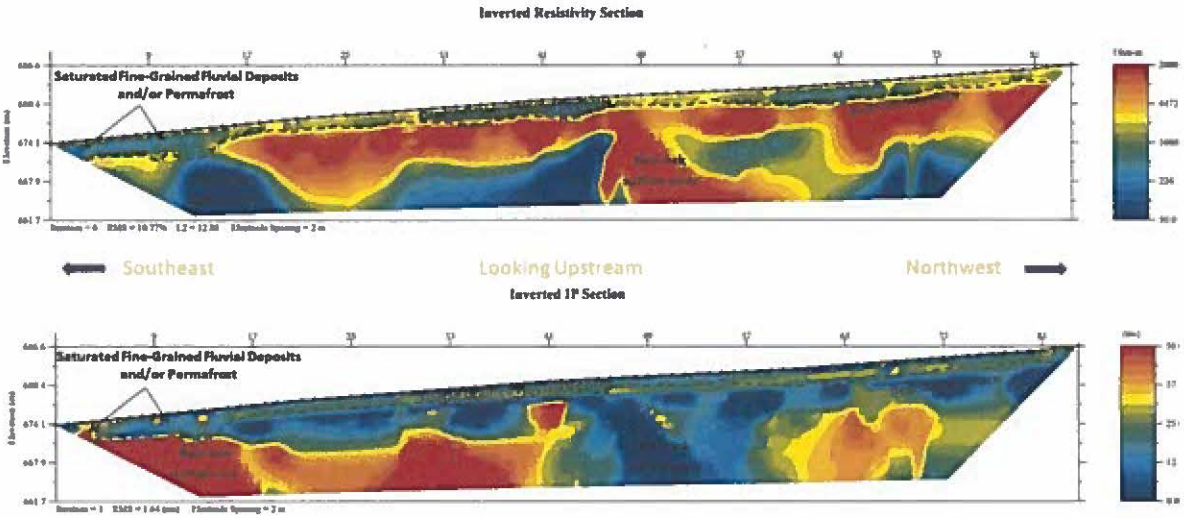

Figure 8: Interpretation of Resistivity and Chargeability Profile of SUNIP19-01

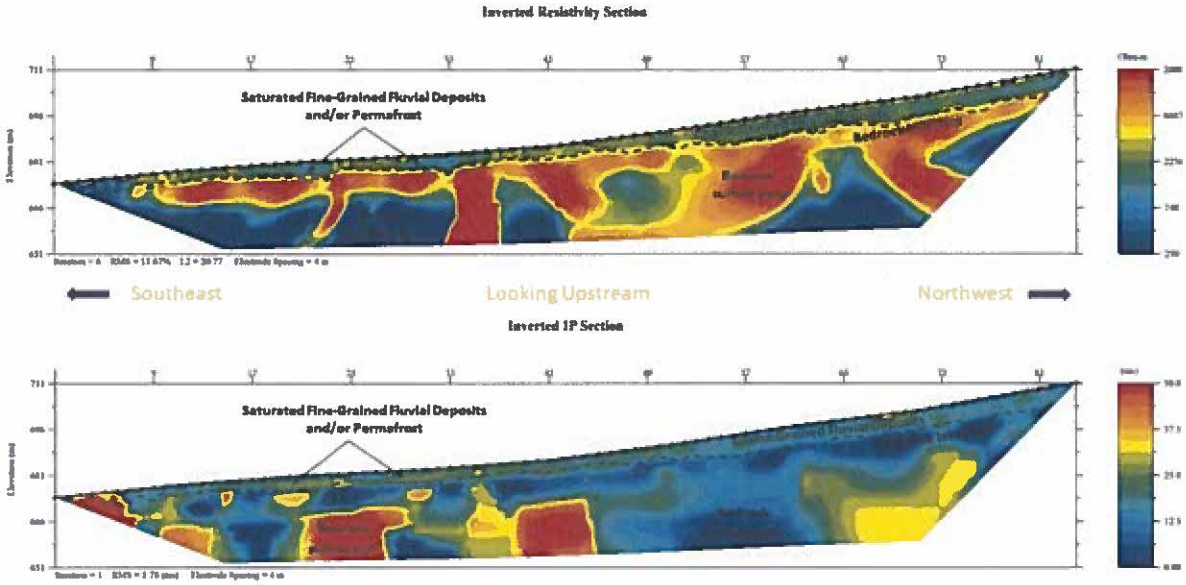

Figure 9: Interpretation of Resistivity and Chargeability Profile of SUNIP19-02

9.0 Recommendations

It is recommended to complete a drill fence on the resistivity and chargeability profiles, particularly in the areas determined to be sulfide rich and sulfide poor. Drilling will confirm the interpretation set forth and aid in the interpretation of the stratigraphy and depth to bedrock throughout the valley.

10.0 Statement of Expenditures

Schedule A: Statement of Work and Expenditure

Placer Exploration: Sunshine Creek - 3 Mile Placer lease IW00679

Overview:

1 Day DC Resistivity survey on Sunshine Creek 3 mile lease was conducted by a GroundTruth team of 4 on September 11, 2019.

An AGI Suersting R8 Resistivity meter was used.

Data Processing, Interpretation and Assessment Report were prepared by GroundTruth Exploration Inc

GEOPHYSICAL SURVEYS - IP -DC RESISTIVITY BREAKDOWN	Charge out	Units	Costs	Total	Invoice #	Sept. 11
DC Resistivity Wages (field crew of 4)						
1 DC Resistivity Operator/Foreman & 3 Field Assistants	$ 1,299.87	1	$ 1,299.87	$ 1,299.87	10343	1
IP-Res Survey Equipment						
IP/Resistivity Meter: Supersting 8 Channel meter w/cables, 84 electrodes	$ 715.00	1	$ 715.00			1
Precision DGPS: Ashtech Promark 100 differential GPS	$ 82.50	1	$ 82.50			1
Field Laptop/Software for nightly download	$ 82.50	1	$ 82.50			1
Iridium Sat Phone (per day)	$ 82.50	1	$ 82.50			1
Chainsaw for line cutting (per day)	$ 55.00	2	$ 110.00	$ 1,072.50	10343	2
Consumable Supplies						
Stainless Electrodes: wear & tear- 2 per profile, $6.5 ea	$ 14.30	2	$ 28.60			2
Calcium Chloride: 4kg per profile, $2/kg	$ 8.80	2	$ 17.60			2
Pickets/Spray Paint, 14 per profile, $1/picket	$ 15.40	2	$ 30.80	$ 77.00	10343	2
Mobilization						
Set-outs and pick-ups	$ 1,500.00	1	$ 1,500.00	$ 1,500.00	67523	1
Data Processing, Interpretation and Report						
Data Processing ($51.48/hr) - C. Cote -Management	$ 51.48	5.32	$ 273.87		10343	1
Interpretation and Assessment Report ($95/hr) - A. Feduk - Placer Geologist	$ 95.00	8	$ 760.00	$ 1,033.87		1

DC IP-Resistivity Survey Expense:	**$ 4,983.24**

11.0 Statement of Qualification

I, Allison Feduk with a business address in Dawson City, Yukon, and residential address in Carlyle, Saskatchewan, do herby certify that:

1. I graduated from the University of Regina in the fall of 2011 with a Bachelor of Science in Geology.

2. From 2012 to present I have been actively engaged in mining and mineral exploration in Alberta and the Yukon Territory.

3. I have been an employee of GroundTruth Exploration Inc. since July of 2018.

4. I am not aware of any material fact or material change with respect to the subject matter of this report, the omission to disclose which makes this report misleading.

Dated this 22nd day of February, 2020.

Respectfully submitted,

Allison Feduk

12.0 References

Mineral Titles: Yukon Mining Recorder, Mining Claims Database – www.yukonminingrecorder.ca

Topographic data: Natural Resources Canada, The Atlas of Canada - Toporama- http://atlas.gc.ca/toporama/en/index.html

Property Geology: Yukon Mining Recorder, Mining Map Viewer - http://mapservices.gov.yk.ca/Mining/Load.htm

Colpron, M., Israel, S., Murphy, D.C., Pigage, L.C., and Moynihan, D., 2016. Yukon Bedrock Geology Map. Yukon Geological Survey, Open File 2016-1.

Colpron, M., Nelson, J. L., and Murphy, D. C., 2006. A techtonostratigraphic framework for the pericratonic terranes of the Norther Cordillera: Canadian and Alaskan Cordillera: Geologic Association of Canada, p. 1 – 23.

Clark, D. A. and Emerson, D. W.,1991. Notes on Rock Magnetization Characteristics in Applied Geophysical Studies. In Exploration Geophysics, p. 547 – 555.

Mortensen, J.K. and Allan, M.M., 2012. Summary of the Tectonic and Magmatic Evolution of Western Yukon and Eastern Alaska. In Yukon Gold Project Final Technical Report, Edited by Allan, M.M., Hart, C.J.R., and Mortensen, J.K. Mineral Deposit Research Unit, University of British Columbia, p. 7 – 10.

Mortensen, J. K., and Hart, C. J. R., 2010. Late and Post-Accretionary Magmatism and Metallogeny in the Norther Cordillera, Yukon and Eastern Alaska. Geological Society of America Annual Meeting, Denver, 31 October to 3 November 2010.

Nelson, J., Colpron, M., and Israel, S., 2013. The Cordillera of British Columbia, Yukon and Alaska: tectonics and metallogeny. In: Colpron, M., Bissig, T., Rusk, B., and Thompson, J.F.H., (Editors), Tectonics, Metallogeny, and Discovery - the North American Cordillera and similar accretionary settings. Society of Economic Geologists, Special Publication 17: 53-109.

Palacky, G. J., 1988. Resistivity Characteristics of Geologic Targets. Electromagnetic Methods in Applied Geophysics. Geological Survey of Canada

Roots, C., Nelson, J., Mihalynuk, M. G., Harms, T. A., De Keijzer, M., and Simard, R. L., 2004. Bedrock Geology of Dorsey Lake, Yukon Territory. Yukon Geological

Survey, Geological Survey of Canada, Open File 4630.

Ryan, J. J., Zagorevski, A., Williams, S. P., Roots, C., Ciolkiewicz, W., Hayward, N., and Chapman, J. B., 2013. Geology of Stevenson Ridge (northeastern part), Yukon; Geological Survey of Canada, Canadian Geoscience Map 116 and 117.

Additional review of various published scientific and reporting papers on the geology and mineral deposits of the region for indirect reference.