REPORT

On the

2019 YMEP Target Evaluation Program 19-098

On the

Stu Copper Property

Near Carmacks, Yukon, CANADA

Located Within:

NTS Sheet: 115I07

Whitehorse Mining District

Latitude 62°24' North by Longitude 136°49' West

Operator and Current Claim Owner:

Granite Creek Copper

409 – 904 Granville St

Vancouver, BC, Canada V6C 1T2

Report Prepared by:

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PERIOD OF WORK: June 17-21 and August 2- September 10, 2019

REPORT DATE: January 31, 2020

Table of Contents

List of Tables

List of Figures

1 Summary

The Stu Copper property lies within the Carmacks Copper Belt, a linear stretch of intrusion hosted Cu (+/- Au-Ag-Mo) mineralization in the Dawson Range, south-central Yukon Territory. Centered on the Minto Mine the belt extends from north of the Yukon/Pelly River confluence southeast to the community of Carmacks. The Carmacks Copper Belt has been proven productive, hosting the Minto copper mine and the advanced stage deposit at Carmacks. Minto has produced approximately 471 million pounds of copper to date and both deposits have the highest-grade copper in Western Canada. The Stu property lies on strike between the two deposits, displays the same style of mineralization, and has shown preliminary copper values of a similar caliber from the limited drilling results available. Copper mineralization (with Au, Ag, Mo) is contained in foliated to gneissic granodiorite, formed either as shear zones, according to Hood's interpretation at the Minto mine or as assimilation zones where migmatites and granodiorites were mixed, according to Kovac's interpretation at the Carmacks Copper deposit.

Between September 25 and 28, 2018, Longford Exploration Services Ltd collected 166 soil samples in a grid pattern along the southeast portion of the property. Samples were collected at a density of 50 m intervals by 100 m line spacings. The purpose of the survey was to carry out assessment work to keep the claims in good standing and to collect soil samples on an area of the property with limited historic sampling. The work was carried out and funded by Granite Creek Copper and its contractors.

The Stu Copper property is located approximately 47 km directly northwest of Carmacks, Yukon and 210 km directly northwest of Whitehorse, the capital of the Yukon Territory. The Property consists of 541 contiguous claims which cover approximately 11,081 hectares. The centre of the property is located at latitude 62° 24' N and 136° 49' W longitude on NTS map sheet 115I07.

There are 3 advanced and 7 early-stage zones of mineralization or anomalies on the Stu Copper property. In all zones with exposed bedrock, foliation strikes northwest. Copper sulphides occur within the foliated granodiorite and gneiss where they replace mafic minerals. Copper oxides have in turn replaced the copper sulphides where the mineralization has been exposed to oxidation. Copper bearing minerals malachite, azurite, chalcopyrite, bornite, chalcocite and tenorite (copper wad) have been observed in hand samples and drill core. Magnetite is locally abundant in both mineralized and unmineralized rock. The highest gold and silver values are associated with bornite-rich sections.

Intensive exploration in the Carmacks Copper Belt began in the 1960s following the discovery of the Casino porphyry copper deposit in the Dawson Range, 100 km northwest of the property. Prior to this time, copper showings had been staked close to the Yukon River in the late 1890s. After the Casino discovery, a staking rush in the area unearthed the Carmacks deposit and Minto mine properties in the early 1970s. The Stu property was worked from 1971 to 1982 by United Keno Hill Mines (UKHM), and again from 1989-2013 by UKHM, Western Copper and other operators. Detailed information and geochemical results from UKHM's trenching and drilling programs were not released in assessment reports or made public.

Since acquiring the property, Granite Creek has received documents and maps from Alexco produced by UKHM during their exploration in the area, that were previously unavailable. This information will be digitized and interpreted, and the resulting insights incorporated into the exploration program.

Over the last decade, exploration of Triassic-Jurassic porphyry targets in the northern Cordillera has taken significant new directions. The discovery of deep, structurally controlled porphyry roots at the New Afton mine near Kamloops and at Red Chris in northern B.C. and expansion of reserves at Minto, has created new mining opportunities and a shift in focus from broad, low-grade, shallow targets to much higher grade, albeit less accessible resources (Nelson et al, 2013).

The Stu Property is along a continuum of mineralization from the flat-lying sulphide dominant deposit at Minto to the near vertical, oxide dominated deposit at Carmacks Copper. Zone A more closely resembles Minto, with sulphide dominant mineralization while Zone B resembles oxide copper mineralization at the Carmacks project. Since the last drilling program at Stu in 1989, work at Minto and Carmacks Copper has added considerably more understanding of deposit characteristics and geometry, and these insights can be applied to exploration on the Stu Property.

Outside of the advanced zones, the other named zones have not been systematically tested nor are results available for the limited trenching and drilling that have been done. The general elongate structure of the zones and the results from limited sampling indicate that there is potential for the zones to host mineralization similar in geometry and mineralization to Zones A, B and C.

Compilation of soil sampling on the Stu Copper property has revealed of soil anomalies over the 15km length of the property. The strongest is an annular anomaly 5km in diameter encompassing Zone A, Zone B and Zone D. The low area in the centre of the ring is situated north of Zone C. Other significant anomalies occur in Gran and South Butter and at the northwest end of the property. Anomalies appear as clusters of >30 ppm copper with occasional values exceeding >100 ppm that have an overall northwest to north trend. Historic soil samples were only analyzed for copper but are an effective tool for exploration. Further infill and overlap soil sampling should be done to provide multi-element geochemical coverage over key areas, and extension sampling completed in areas lacking coverage.

2 Introduction

2.1 Purpose

Between June 17 and September 10, 2019 True Point Exploration carried out a 2-phase work program on the Stu Copper Property. The work was carried out by True Point Exploration and contractors and funded by Granite Creek Copper with assistance from YMEP. The first phase from June 17-21, 2019 was conducted on the northeast side of the property and consisted of prospecting, mapping, soil and rock sampling and staking. The second phase from August 2-September 10, consisted of line cutting, soil sampling and a 23.9 line kilometre ground IP survey over the southern end of the property and mapping, prospecting and soil and rock sampling over selected outcrops on the remainder of the property. A total of 24 rock samples and 265 soil samples collected. The purpose of the work was to advance exploration on the Stu Copper property towards drilling and an eventual inferred resource.

The program took 42 of field work, 218 person days, the average number of people in camp was 5 and the cost was $264,740 based on YMEP rate guidelines.

This report was prepared to satisfy requirements for the Final Technical Report as required by the Yukon Mineral Exploration Program. Digital files accompany the report.

2.2 Geographic Terms

The following geographic areas and features are briefly described for orientation with respect to the text, tables, and figures.

Dawson Range – a range of subdued mountains running northwest from Carmacks to Dawson City. Hosts numerous mineral deposits and occurrences and at times has been a mining district for promotional purposes.

Minto Copper Belt – a mining district trending northwest from Carmacks to past the Minto mine containing a cluster of copper (+/- gold, silver, molybdenum) mineral occurrences and deposits. Depending on the year and the user, the area is variable in size, but is anchored by the Minto and Carmacks Copper deposits. Variations on the name include Carmacks Copper Belt and Carmacks (Minto) Copper-Gold Belt.

Carmacks Copper Deposit – originally called Williams Creek, recently called Carmacks Project.

2.3 Abbreviations and Units of Measurement

Metric units are used throughout this report, except when referring to historic exploration work that was originally reported in the imperial system (conversions are given). Dollar amounts are reported in Canadian Dollars (CAD$) unless otherwise stated. Coordinates within this report use UTM NAD83 UTM Zone 08N unless otherwise stated. The following is a list of abbreviations which may be used in this report:

Table 3-1 Abbreviations and Units of Measurement

Abbreviation	Description	Abbreviation	Description
%	percent	li	limonite
AA	atomic absorption	m	metre
Ag	silver	m^2	square metre
AMSL	above mean sea level	m^3	cubic metre

Abbreviation	Description
Au	gold
AuEq	gold equivalent grade
Az	azimuth
b.y.	billion years
CAD$	Canadian dollar
cm	centimetre
cm^2	square centimetre
cm^3	cubic centimetre
Cu	copper
°C	degree Celsius
°F	degree Fahrenheit
DDH	diamond drill hole
ft or ‘	feet
ft^2	square feet
ft^3	cubic feet
g	gram
GMB	Granite Mountain Batholith
GPS	Global Positioning System
Gpt or g/t	grams per tonne
ha	hectare
in or “	inch
ICP	induced coupled plasma
kg	kilogram
km	kilometre
km^2	square kilometre
l	litre

Abbreviation	Description
Ma	million years ago
mg	magnetite
mm	millimetre
mm^2	square millimetre
mm^3	cubic millimetre
Mo	Molybdenum
Moz	million troy ounces
Mt	million tonnes
m.y.	million years
NAD	North American Datum
NI 43-101	National Instrument 43-101
opt	ounces per short ton
oz	troy ounce (31.1035 grams)
Pb	lead
ppb	parts per billion
ppm	parts per million
PDH	Percussion drill hole
QA	Quality Assurance
QC	Quality Control
RC	reverse circulation drilling
RQD	rock quality description
Sedar	System for Electronic Document Analysis and Retrieval
SG	specific gravity
st	short ton (2,000 pounds)
t	tonne (1,000 kg or 2,204.6 lbs)
UKHM	United Keno Hill Mines
um	micron
US$	United States dollar
Zn	zinc

3 Property Description and Location

3.1 Location

The Stu Copper Property (the "Property" or "Stu Property") is located approximately 47 km directly northwest of Carmacks, Yukon and 210 km directly northwest of Whitehorse, the capital of the Yukon Territory (figure 3.1). The Property consists of 562 contiguous claims which cover approximately 11,450 hectares. The centre of the property is located at latitude 62° 24' N and 136° 49' W longitude on NTS map sheet 115I07.

3.2 Ownership and Permits

A five-year, Class 3 Mining Land Use Permit (MLU LQ00433) from Mining Land Use, Government of Yukon for the southern part of the property expires February 6, 2023. The permit for the northern part of the property has expired (LQ00413) and a new permit is in the YESAB application process (MLU 2019-0094). As required in the permits, overview archaeological surveys have been carried out and small areas of high potential for archaeological sites have been delineated. The activities described in this report that were carried out in the area without a permit were kept under Class 1 thresholds.

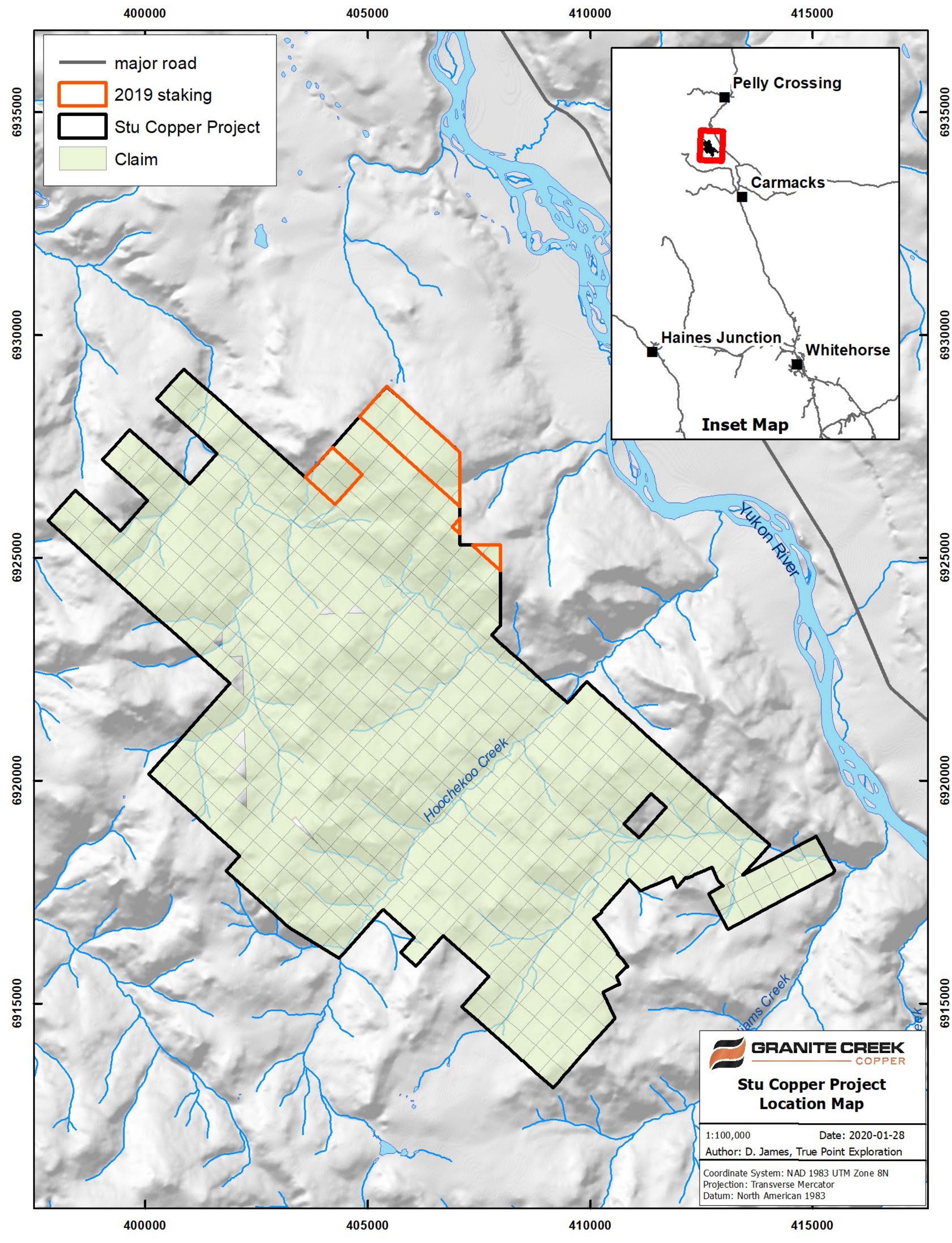
On September 13, 2018 Granite Creek entered into an agreement with the owner of the Stu property (William G. "Bill" Harris), under which the company acquired an undivided 100% interest in and to the Stu Copper Project. The claims have been transferred from Bill Harris to Granite Creek Copper. See below for list of claims. All claims are in good standing and none have expired.

Table 3-1: Stu Property mineral tenures.

Grant No	Claim Name	No. of claims	expiry date	Owner Name
YC37770 - 779	STU 1 - 10	10	2026-12-13	Granite Creek Copper Ltd
YC37780 - 787	STU 31 - 38	8	2026-12-13	Granite Creek Copper Ltd
YC37788 - 795	STU 21 - 28	8	2026-12-13	Granite Creek Copper Ltd
YC40201 - 218	STU 55 - 72	18	2026-12-13	Granite Creek Copper Ltd
YC40249 - 258	STU 11 - 20	10	2026-12-13	Granite Creek Copper Ltd
YC40259 - 260	STU 29 - 30	2	2026-12-13	Granite Creek Copper Ltd
YC40261 - 276	STU 39 - 54	16	2026-12-13	Granite Creek Copper Ltd
YC65256 - 298	STU 73 - 115	43	2026-12-13	Granite Creek Copper Ltd
YC65299 - 315	STU 116 - 132	17	2025-12-13	Granite Creek Copper Ltd
YE91341 - 347	STU 133 - 139	7	2024-12-13	Granite Creek Copper Ltd
YE91348	STU 140	1	2024-12-21	Granite Creek Copper Ltd
YE91349 - 367	STU 141 - 159	19	2024-12-13	Granite Creek Copper Ltd
YE91368	STU 160	1	2024-12-21	Granite Creek Copper Ltd
YE91369 - 390	STU 161 - 182	22	2024-12-13	Granite Creek Copper Ltd
YE91391 - 427	STU 183 - 219	37	2024-12-13	Granite Creek Copper Ltd
YE91434 - 466	STU 226 - 258	33	2024-12-13	Granite Creek Copper Ltd
YE91467 - 468	STU 259 - 260	2	2024-12-21	Granite Creek Copper Ltd
YE91469 - 480	STU 261 - 272	12	2024-12-13	Granite Creek Copper Ltd
YE91489 - 501	STU 281 - 293	13	2024-12-13	Granite Creek Copper Ltd

Grant No	Claim Name	No. of claims	expiry date	Owner Name
YE91502	STU 294	1	2024-12-21	Granite Creek Copper Ltd
YE91503 - 556	STU 295 - 348	54	2024-12-13	Granite Creek Copper Ltd
YF20701 - 772	WC 1 - 72	72	2025-12-13	Granite Creek Copper Ltd
YF20773 - 800	HOO 1 - 28	28	2025-12-13	Granite Creek Copper Ltd
YF29049 - 069	STU 349 - 369	21	2023-12-26	Granite Creek Copper Ltd
YF46357 - 380	CHE 1 - 24	24	2025-12-13	Granite Creek Copper Ltd
YF46387 - 398	HOO 35 - 46	12	2025-12-13	Granite Creek Copper Ltd
YF46399 - 400	KOO 57 - 58	2	2026-12-13	Granite Creek Copper Ltd
YF46401 - 406	CHE 25 - 30	6	2025-12-13	Granite Creek Copper Ltd
YF46407 - 417	WCF 1 - 11	11	2025-12-13	Granite Creek Copper Ltd
YF46501 - 512	KOO 1 - 12	12	2025-12-13	Granite Creek Copper Ltd
YF46515 - 544	KOO 15 - 44	30	2025-12-13	Granite Creek Copper Ltd
YF46547 - 552	KOO 47 - 52	6	2025-12-13	Granite Creek Copper Ltd
YF46553 - 556	KOO 53 - 56	4	2026-12-13	Granite Creek Copper Ltd
Totals		**562**		

Figure 3-1: Location and claim map of the Stu Copper Property.



4 Accessibility, Infrastructure and Climate, Infrastructure and Physiography

4.1 Accessibility

The Stu property is currently accessible from the Freegold Road that leads northwest into the Dawson Range. The Freegold Road is maintained by the Yukon Government and is open seasonally between April and October. At the 35 km mark, the access road to the Carmacks Project branches off for 13 km to the Carmacks Project camp. The Carmacks Project road is narrow, winding and steep in places, but is scheduled to be rerouted as the Project moves towards operation. Beyond the Carmacks Project camp, a user-maintained gravel road with four creek crossing leads for 10 km to Hoocheekoo Creek in the middle of the Stu property. Bulldozer and ATV trails on the property lead to various zones on the property. The STU property can also be accessed by a 15-20-minute helicopter flight from Carmacks.

The Freegold Road branches off Highway 2 at the village of Carmacks, which is a 1.75-hour drive along paved public highways from Whitehorse. Skagway, 180 km by road south of Whitehorse is the nearest year-round port with facilities for loading concentrate.

4.2 Climate

The Carmacks area has a northern interior climate with warm summers (+20º C), long cold winters (-20º C) and low to moderate precipitation (25-30 cm), most of which falls in summer. Mean annual temperatures are near -4°C. The dry climate leads to frequent forest fires. Snow cover remains from mid-October to mid-April at lower elevations and a month longer at higher elevations. The typical exploration season is from April to October.

The nearest active weather station to the property is 69 km away at Pelly Ranch.

Table 4-1: Climate data from Pelly Ranch weather station (Environment Canada)

Temperature	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
Daily Average (°C)	-24.9	-19.5	-10.6	0.7	8.3	13.9	15.8	12.8	6.5	-2.5	-16.3	-21.9	
Record High (°C)	-19.7	-12.8	-1.7	8.3	15.7	21.5	22.8	19.8	12.8	1.8	-12.1	-16.7	
Record Low (°C)	-30.1	-26.2	-19.4	-6.8	0.9	6.3	8.7	5.7	0.3	-6.7	-20.4	-27.0	
Avg Precipitation (mm)	19.7	14.9	10.6	8.9	27.2	38.5	58	41.4	31.6	24.5	25.8	19.4	
Avg Rainfall (mm)	0	0	0.2	3.8	26.7	38.5	58	41.4	29	8.8	0	0	
Avg Snowfall (cm)	19.7	14.9	10.5	5.1	0.5	0	0	0	2.7	15.6	25.8	19.4	
1981 to 2010 Canadian Climate Normals station data;													

4.3 Physiography

The Stu property lies within the Yukon Plateau-Central Ecoregion which is characterized by a dry climate and extensive grasslands on south aspect slopes. The west boundary of the ecoregion sits at the limit of Cordilleran Pleistocene glaciation and glacial deposits. Glacial cover was partial; valley glaciers extended along major valleys and tributaries depositing glacial drift on lower slopes and valley bottoms. Colluvium blankets steep slopes and uplands.

The property covers an area bisected by Hoocheekoo Creek within the northeastern edge of the Dawson Range of the Yukon Plateau. Elevations range from a low of 600m in the eastern part of the project up to 1075m in the western portion. Most slopes are gentle to moderate except along the southeast aspect slopes of drainages. North-facing slopes are timbered with black spruce and generally have a thick moss cover. Some north facing slopes and low-lying wet areas are covered by dense alder and willow. South facing slopes are better drained and have a cover of poplar or pine. Some parts of the claims were burnt by forest fires in 1995 and 2004.

Outcrop exposure on the property is <1% with float covering approximately 8%. Large areas of the property are covered by thick overburden and in general, all known mineralization is found on hill tops or along ridge slopes where the overburden is thin or absent.

Several small streams flow in broad swampy valleys between 400 m and 800m wide. The streams drain to the north into Big Creek or to the northeast and southeast into Hoocheekoo Creek and Nancy Lee Creek, a tributary of Williams Creek.

4.4 Infrastructure

4.4.1 Regional Infrastructure

The nearest community to the project area is Carmacks, 60 km by road and trail or 47 km directly. Carmacks is incorporated as a village and covers 37 square kilometres. The economic base is government and services. There is seasonal work in mining and exploration, tourism, firefighting and construction. The population is not large enough to provide a workforce for mine construction and development, requiring workers to be brought from Whitehorse and further afield.

Services in the village include:

- Nursing station with doctors' consultations by appointment.
- Tantalus School offering classes for K-12. Yukon College provides GED, academic upgrading, computer training and occupational courses.
- Recreation Centre with attached, covered skating rink.
- Airport and helicopter pad within city limits, No scheduled flights.
- Landfill site at south end of town. Recycling services once a week at landfill.
- A community water system, although some residents have private wells, and there is a water delivery service.
- Electricity from the Yukon electrical grid.
- Cell service, internet and telephone available.
- RCMP station, volunteer ambulance and for protection
- Government of Yukon – Lands and Forestry
- Little Salmon Carmacks First Nation government offices

Commercial services are limited, but include:

- 2 service stations
- Restaurants
- Grocery store

- Hotel and rental cabins
- campground

Carmacks has a population of 503 people, an increase of 78 people since 2006. The age group distribution is: 0-14, 125 people, 14-64, 345 people and over 65, 35 people. There are 195 private households, 100 of them are married or common law families, and 35 are lone parent families. English is the dominant language with a few aboriginal speakers and some French. (All information from Statistics Canada. 2012. GeoSearch 2012).

The nearest electrical power supply is a Yukon Energy Corp. (YEC) transmission line 12 km to the northeast on the east side of the Yukon River. The Yukon powergrid is a large hydro-based grid and is not connected to the rest of North America, so is required to be self-sufficient for power.

4.4.2 Local Infrastructure

Should the neighbouring Carmacks Copper deposit advance to development, any infrastructure development (roads, power etc.) would benefit the Stu Copper project. The subdued topography on the Stu property is suitable for construction of mining operations and there is enough water available on the property or nearby for drilling and development.

A historic camp is located close to Zone A on the Stu property, consisting of a kitchen trailer, outhouse, wooden tent platforms and core storage. The camp is accessible by a 4 km ATV trail from the end of the 4WD road near Hoocheekoo Creek. The camp will need upgrading to accommodate crews working on a drill program, and there may be alternate locations closer to the south end of the property that are more easily accessible by road.

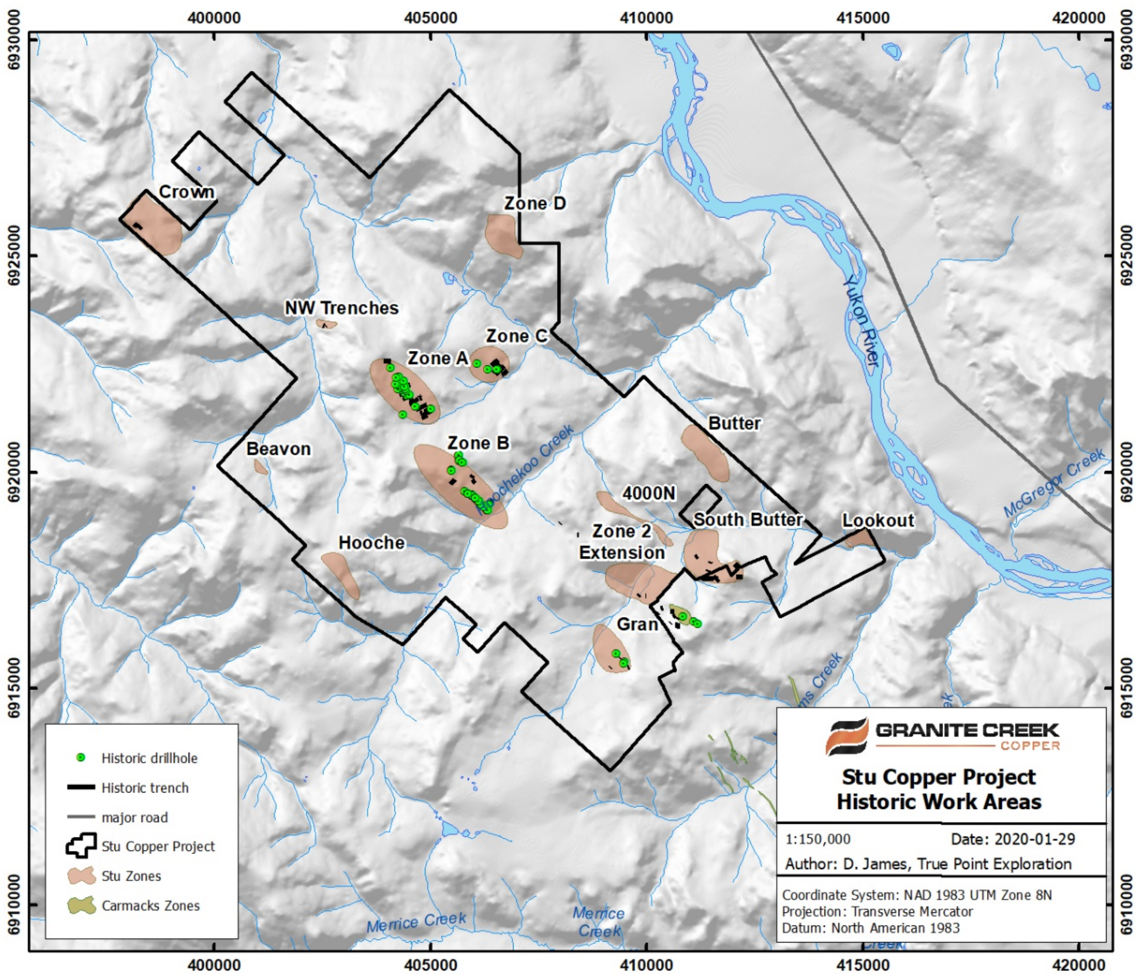
During the 2019 YMEP program, the Carmacks Copper camp was used during the August-September phase and for the June phase of the work, the crew commuted by helicopter from a crew house in Keno.

5 History

Intensive exploration near the Stu Copper property started in the late 1960s following discovery of the Casino porphyry copper deposit in the Dawson Range, 100 km northwest of the property. Prior to this time, copper showings had been staked close to the Yukon River in the late 1890s. Following the Casino discovery, a staking rush in the area unearthed the Carmacks deposit and Minto mine properties in the early 1970s. The Stu property was worked from 1971 to 1982 by United Keno Hills Mines (UKHM), and again from 1989-2013 by UKHM, Western Copper and other operators. The amount of detailed information and geochemical results from UKHM's trenching and drilling programs is limited.

While under the ownership of Bill Harris, short programs consisting of examination and inspection of the property, rock sampling, surveying of trenches and drill holes, petrography, data compilation, collection of magnetic susceptibility measurements, claim staking and a limited amount of chip sampling of trenches were undertaken between 2005 and 2014. The information and results from these programs partially confirmed missing surface information from the UKHM work. In 2015, the vendor undertook a larger program of excavator trenching, systematic sampling, rehabilitation of old core and selected relogging and reassaying of core. Complete information on programs on the Stu claims from 2005-2015 can be found in assessment reports by R. Robertson, J. Pautler and D. James, and is summarized in this section.

Figure 5-1: Location of mineralized zones, drillholes and trenches on the Stu Property.



5.1 Exploration History

Exploration history and ownership of the Stu property and pertinent adjacent properties is summarized in the table below.

Table 5-1 Work history of mineral occurrences on the Stu Copper Property

Timeframe	Occurrence	Performed By	Work	Reference
1971	Stu Property	Hudson's Bay Oil & Gas Company Ltd	Bay claims staked over part of what is now Stu property. Line cutting, grid soil sampling and magnetometer survey	*Burgan and Mitchell, 1971*
1974	Stu Property	Hudson's Bay Oil & Gas Company Ltd	IP and VLF-EM surveys over the Bay claims. Follow-up detailed soil sampling over geophysics anomalies. EM anomaly around Zone C and just to the north of the STU claims. Anomalies are oriented northwest	*Olson, 1975*
1993 – 1994	Stu Property, Carmacks Copper	Western Copper	First feasibility Study at Carmacks Copper deposit. Airborne and ground geophysics surveys delineates the 4000N zone and the Gran/Zone 3	*McNaughton, 1994*
2005 - 2017	Stu Property	B. Harris	Series of short programs including: staking, GPS surveying, magnetic susceptibility testing, geological mapping, rock and soil sampling, a petrographic study, upgrading access, hand and excavator trenching, overview archaeological survey, XRF test survey, rehabilitation of core, relogging and reassaying.	*Robertson, 2006; Pautler, 2007; Pautler, 2009; Pautler, 2011; Pautler 2012; James, 2014; Pautler, 2015; James, 2016*
2006-2008	Stu Property, district	S. Ryan, BC Gold	Claims staked around Stu Property. Claims optioned to BC Gold after limited soil sampling. BC gold flew a regional airborne magnetic and radiometric survey over their claims in the area. MMI soil sampling and IP surveys.	*Ryan, 2006; Newton, 2008; Sidhu, 2009*

Table 6-2: Work history of mineral occurrences adjacent to the Stu Copper property.

Timeframe	Occurrence	Performed By	Work	Reference
1880s to 1910s	Bonanza King	prospectors	Copper discoveries and eventual smelter shipment from v veins in the canyons of Merrice and Williams Creek	*YGS minfile 115I010*
1960s	regional		Staking rush in the Dawson Range following discovery of Casino deposit.	
1970	Carmacks	Dawson Range Joint Venture	Discovery of Carmacks deposit	*Archer, 1971*
1971	Carmacks	Dawson Range Joint Venture	Extensive exploration including drilling, trenching, road construction, ground geophysics surveys, mapping and sampling, adjacent to the south boundary of the STU Property.	*Archer, 1973*

Timeframe	Occurrence	Performed By	Work	Reference
1973	Minto		Main mineralized body found at Minto	
1976-1989	District	United Keno Hill Mines Ltd.	Work on the area between Minto and Carmacks Copper, including the present-day Stu property. Property mapping, extensive grid soil sampling, ground and airborne geophysics. Leads to bulldozer trenching, diamond and percussion drilling on zones A, B and C on Stu property.	*Watson and Joy, 1977; Smith, 1979 Newman and Joy, 1980; Leblanc and Joy, 1980; Coughlan and Joy, 1981; Joy 1981a,b; Davidson and Joy, 1981; Tempelman-Kluit, 1981; Ouellette, 1989; YGS minfile 115I126*
2004	Carmacks Copper		Carmacks Copper deposit enters permitting process.	
2007 - 2018	Minto		Commercial production at Minto mine.	

5.2 Mapping and Prospecting

Most of the current Stu Property configuration was mapped between 1977 and 1981 at 1” = 400’ (1:5000) scale using a cutline grid for survey control. The author has field checked mapping from this era and found it to be reliable and accurate, other than displacement of outcrops due to scanning and georeferencing errors. The record of samples is sparse, but it appears that most of the samples were collected from Zones A, B and C in the central part of the property.

5.3 Soil Geochemistry

The bulk of soil sampling over the Stu Property was in the 1970s and early 1980s. Some of the grids overlap and provide a useful check on each other. See figure 5.2.

5.3.1 1970s & 1980s

The first recorded soil sampling was in 1970, when the Dawson Range Joint Venture carried out reconnaissance geochemical sampling and prospecting over the Carmacks Property which located two mineralized outcrops – Zones 1 and 2. Additional claims were staked north towards Hoocheekoo Creek covering parts of the present day Stu property. Grid soil samples were then collected, and reconnaissance geological mapping undertaken over an 800’ by 400’ (244m by 122m) grid covering 14 square miles (3626 ha).

In 1971 Hudson’s Bay soil sampled the Bay claims on a property wide grid which covered the southern part of the Stu Property. Later workers criticized the quality of the sampling, suggesting the samplers did not consistently sample below the volcanic ash layer so prevalent over the property. This survey is worth further inspection before it is rejected, because it detected Zone C on the STU claims.

A series of large property-wide soil sampling programs were undertaken by UKHM in 1977-1981. Samples were collected along cutline grids at 30 m intervals along lines 100m apart. Zones A, B and C were outlined along with other northwest trending anomalies to the south and east. In the southern part of the Stu property sampling in 1981 delineated five separate northwest trending, moderate to strong copper anomalies at the headwaters of Nancy Lee Creek in what is now the Gran Zone. The other significant anomaly covers the South Butter showing and there are spot anomalies around the Butter showing. The programs were not documented to current standards; there are no laboratory analysis certificates, and no documentation of QAQC. However; the reported methodology is sound, samplers were aware of the detrimental effects of volcanic ash and collected samples in B horizon soils below the ash layer (0.9m deep on average). The value of a survey can be judged on whether it locates mineralization, and under this criterion the surveys were successful.

In 1977, a stream sediment survey was carried out along Stu, Camp and Hoocheekoo Creeks. 362 active inorganic and quiet water organic samples were taken at 100m intervals.

5.3.2 1990s

In 1994, Western Copper cleared a baseline through part of the southern Stu Property. Survey lines were put in at 500m intervals and stations were spaced along each line at 25m intervals. Soil samples were collected at each station, with every other sample sent in for analysis. Moderate to highly anomalous copper in soil values were found northwest of Gran and spotty soil geochemical values up to 323 ppm Cu over the 4000N anomaly.

5.3.3 2000s & 2010s

Minimal soil sampling has been done since the 1990s. Small multi element soil lines or grids have been run over showings or potential extensions of showings. In 2018, 166 soil samples were collected northwest of the Gran Zone.

In 2008, BC Gold collected MMI soil samples over grids around the edge of the Stu Property. The strongest anomalies were south of the Gran Zone and to the northwest of Zone A. Their surveys confirmed or extended anomalies previously delineated in historic work. The Stu Property has been extended to cover some of the BC gold soil anomalies.

In 2019, Granite Creek undertook a GIS compilation of historic soils from previous operators on the Stu property and neighbouring claims (figure 5.2). Over 40,500 points were digitized, but in over 90% of the samples, Copper was the only element analysed. The compilation will be used to plan infill surveys and areas to prospect. The compilation highlighted northerly trends to the anomalies, which had not been so visible previously. A strong linear anomaly is located along the NE side of the project around Zone D. This anomaly was targeted for investigation during the 2019 program.

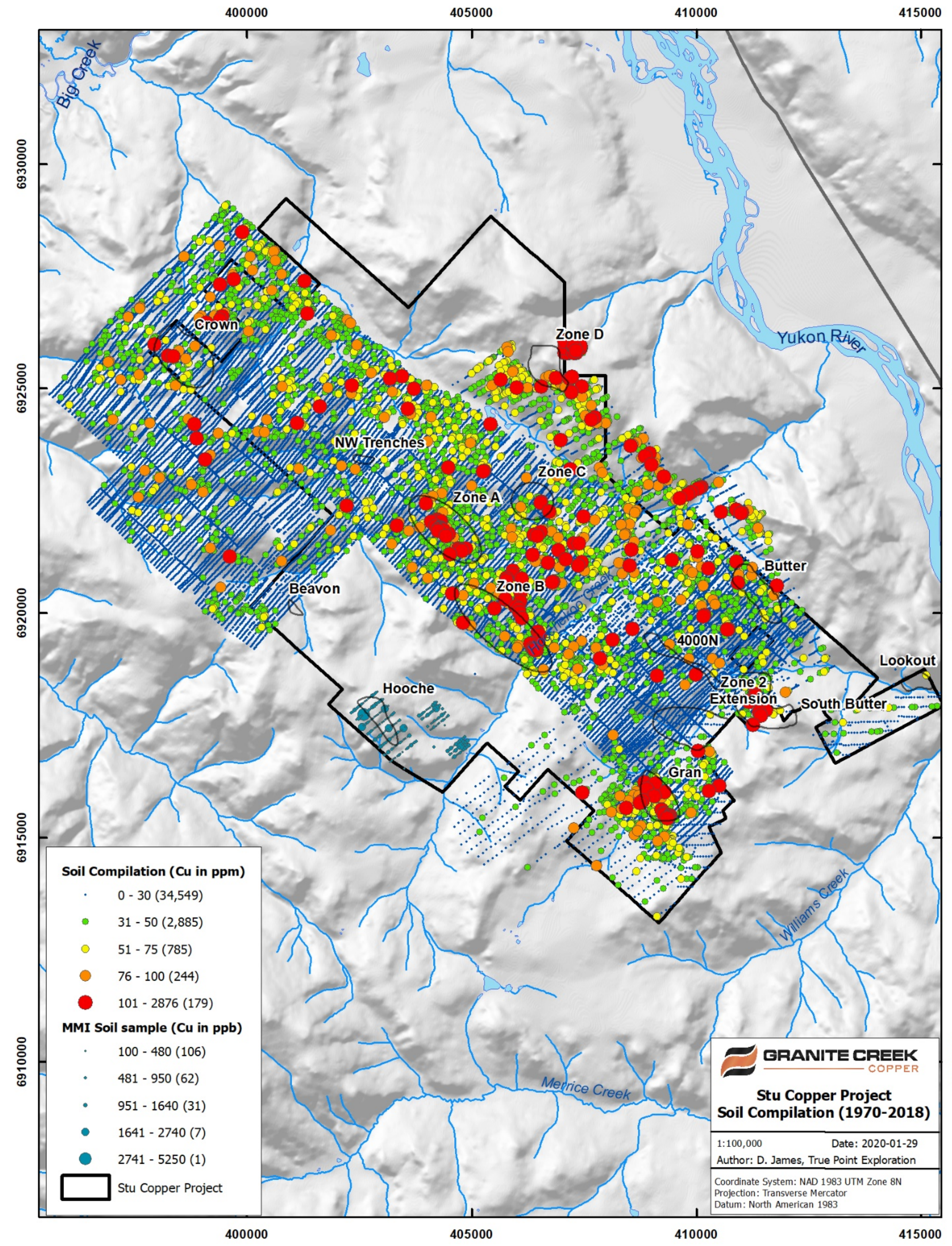


Figure 5-2: Compilation of soil samples from 1970 to 2018. Includes results from neighbouring properties.

5.4 Trenching

UKHM carried out bulldozer trenching programs in 1979 and 1982 over four geochemical and/or geophysical anomalies. Complete assay results are not available, but trench maps with geology and some results were sourced from the UKHM archives. Selected trenches were cleaned and deepened, extended and new trenches were dug in 2015.

5.4.1 1970s & 1980s

In 1979, nine bulldozer trenches were dug in Zone A to expose 900m of strike length. No results are available, but the best trench intersection was 0.19% copper over 15m (Ouellette, 1989). Similar results were returned from the 2015 resampling program and are discussed in section 6.4.2.

In Zone B, 14 bulldozer trenches were excavated in 1979 and 1982 and up to 2% malachite over 0.5m in gneiss was observed (Joy, 1979, referenced in Ouellette, 1989). Recent trench work has revealed similar narrow zones of malachite.

Three trenches over 350m of strike length were excavated in Zone C in 1979, and no further trenching has been done since. There are 3 short trenches in the Northwest Zone, exposing mostly glacial till. No information from this period is available but a sample of clay altered granodiorite with limonite fractures and manganese staining collected in 2010 was not anomalous (Pautler, 2011).

At Gran there are 8 or 9 trenches, either from work by the Dawson Range Joint Venture in the 1970s or UKHM in the 1980s. No results or mapping are available from this time. There is some exposure of weakly altered granodiorite but no mineralization was encountered. The remainder of the trenches are sloughed and overgrown (Pautler, 2015c).

In the South Butter Zone, bulldozer trenching has exposed mafic intrusive rocks, but no mineralization was observed (Pautler, 2015c). The data of trenching is not known but probably occurred in the early 1980s as a follow-up to the soil anomaly from 1981.

5.4.2 2000s &2010s

Between 1982 and 2014 no mechanized trenching was done on the Stu property. Some older trenches were partly cleared by hand and 50 grab samples collected between 2005 and 2014 from trenches in Zones A, B and C. No consistent sampling along trenches was done due to poorly exposed bedrock in sloughed and overgrown trenches.

In 2013, 38 chip samples were collected from three Zone B trenches where bedrock was exposed. Chip samples were taken between 0.5 and 2.0m long on good bedrock exposures. Where exposure was poor samples were either taken at a single location or pieces of rock were collected over a length.

Table 5-3: Selected results of samples collected in 2013 from Zone B trenches.

Trench	Length (m) sampled	# of samples	results
D2	36.5	23	16 > 100ppm copper
B1	6.3	10	>1.0% Cu (the sample was over limit but not assayed), 14.8 g/t Ag and 553 ppb Au over 0.5m. Three other samples >100ppm Cu
B3	22	8	0.55% Cu, 4.4 g/t Ag and 75 ppb Au over 2 metres. Three other samples >100 ppm Cu

In 2014, systematic hand trenching was done over the Nic showing 200m along the eastern side of Zone A. Four 2-8m long northeast trending hand trenches were dug about 10m apart and 19 rock samples were collected. Significant results were obtained from 3 of the 4 trenches. The northernmost trench (14-03) intersected a 5m zone of unmineralized granodiorite cut by a 1m wide diorite dyke.

- Trench 14-01 returned 0.55% Cu, 1.9 g/t Ag and 0.27 g/t Au over 6m
- Trench 14-02 returned 0.49% Cu, 2.2 g/t Ag, 0.33 g/t Au over 3.5m
- Trench 14-03 no significant results, 3 samples all under 100 ppm Cu
- Trench 14-04 returned 0.36% Cu, 1.3 g/t Ag, 0.16 g/t Au over 4.0m

Between July 23 and 31st, 2015, as part of a YMEP funded program, a Hitachi 33 ton excavator was used to dig 385m in 5 new trenches, and to clean and deepen 630m in 7 old trenches in Zones A and B. Mineralized zones in trenches were chip sampled, and XRF readings were taken at 5m intervals along the length of the trench. In all, 97 samples were collected, 6 grab samples and 91 chip samples between 0.5-3m long, averaging 1.8 m long.

Table 5-4: Selected results of 2015 trench samples in Zones A and B.

Zone	Trench	Type	Trench Length (m)	# Samples	Cu results	Length sampled (m)	comments
A	2015A	New	30	5	0.11% Cu 4 other samples >100ppm Cu	Grab samples over 10m	Permafrost and deep overburden. Filled in
A	1150W	Deepened	58	11	0.27% Cu/1.1m 4 other samples >100ppm Cu	23	
A	1150WExt	New	143	13	0.12% Cu/5.5m 8 other samples >100ppm Cu	23.5	Permafrost and deep overburden. Partly filled in.
A	2015 800W	Deepened	187	17	0.14% Cu/9m, 0.33% Cu/10.8m 3 other samples >100ppm Cu	29.8m	
A	600W	Deepened	133	23	0.18% Cu/29m 5 other samples >100ppm Cu	45.5	
A	400W	Cleaned by hand	48	7	All 7 samples >100ppm Cu	13	Cleared to start of deep overburden
A	2015C	New	64	0		0	XRF only, not sampled
B	B3Ext	New	91	0		0	XRF only, not sampled
B	2015H	New	118	3	All 3>100ppm	4 (plus 1 grab)	Only 51m dug
B	B1	Deepened	82	6	0.12% Cu/2m 2 other samples >100ppm	13	Zone chip sampled in 2013
B	7400E	Cleaned by hand	18	12	6 samples>100ppm	18	
Totals			**972**	**97**		**536**	

5.5 Drilling

There were two programs of drilling on the Stu Property. The first was in 1980 on Zones A and C, and the second in 1989 on Zone B.

5.5.1 Diamond Drilling

Approximately 4500 metres of diamond drilling was done by UKHM in 1980 in the A and C Zones. Core from the program is stored near the camp and in 2015 the racks were disassembled and most of the core rehabilitated. Historical drill logs and assay results for the 1980 program are incomplete; the key reports describing the trenching and drilling program were not filed for assessment. However, in 2019 Granite Creek were granted access to documents from the UKHM archives and work is ongoing towards piecing together a drill database.

Templeman-Kuit (1981) reports three high grade intersections from Zone A:

- 80-09 3.44% Cu, 1.87 g/t Au, 13.37 g/t Ag over 13.5m
- 80-14 3.51% Cu, 2.49 g/t Au, 18.35 g/t Ag over 13.5 m
- 80-18 2.80% Cu, 4.04 g/t Au, 17.42 g/t Ag over 12.5m.

He notes that there were other mineralized intercepts with values up to 0.49%. The lengths of the intersections are based on composite sample lengths and their relation to true width is unknown. The mineralization in Zone A appears to dip moderately to steeply to the northeast and the hole collar information indicates that the holes were drilled perpendicular to mineralization. All three high grade intersections were rehabilitated in 2015 but have not been resampled.

Drillhole 80-17 was a deep hole (426m), drilled behind and beneath hole 80-14, presumably as a follow-up beneath the high grade intersection. From 376-401m the hole intersected 25m of 0.155% copper, 6.2 g/t silver and trace gold (UKHM, 1981), at 380m below surface.

In 2015, drillhole 80-6 was relogged and reassayed by geologists from the Yukon Geological Survey (Sack et al., 2016). Sampling from 11.58-35.66 m (24.08m sample length not true width) ranged from 0.03% to 0.34% Cu, averaging 0.18% Cu over the entire interval. A second interval from 52.43-55.78 m averaged 0.46% Cu over 3.35 m (sample width not true width).

Three holes were drilled in the C Zone; drill logs are available for 2 of them. No mineralization was logged. There are 2-3 drill pads in Gran, either from the 1960s or the 1980s but no information has been found for these holes.

Pautler (2009) observed sections of core containing tenorite that had not been sampled, and it is possible that UKHM geologists focused on the visible copper oxides such as malachite and azurite when choosing sample intervals.

5.5.2 Percussion Drilling

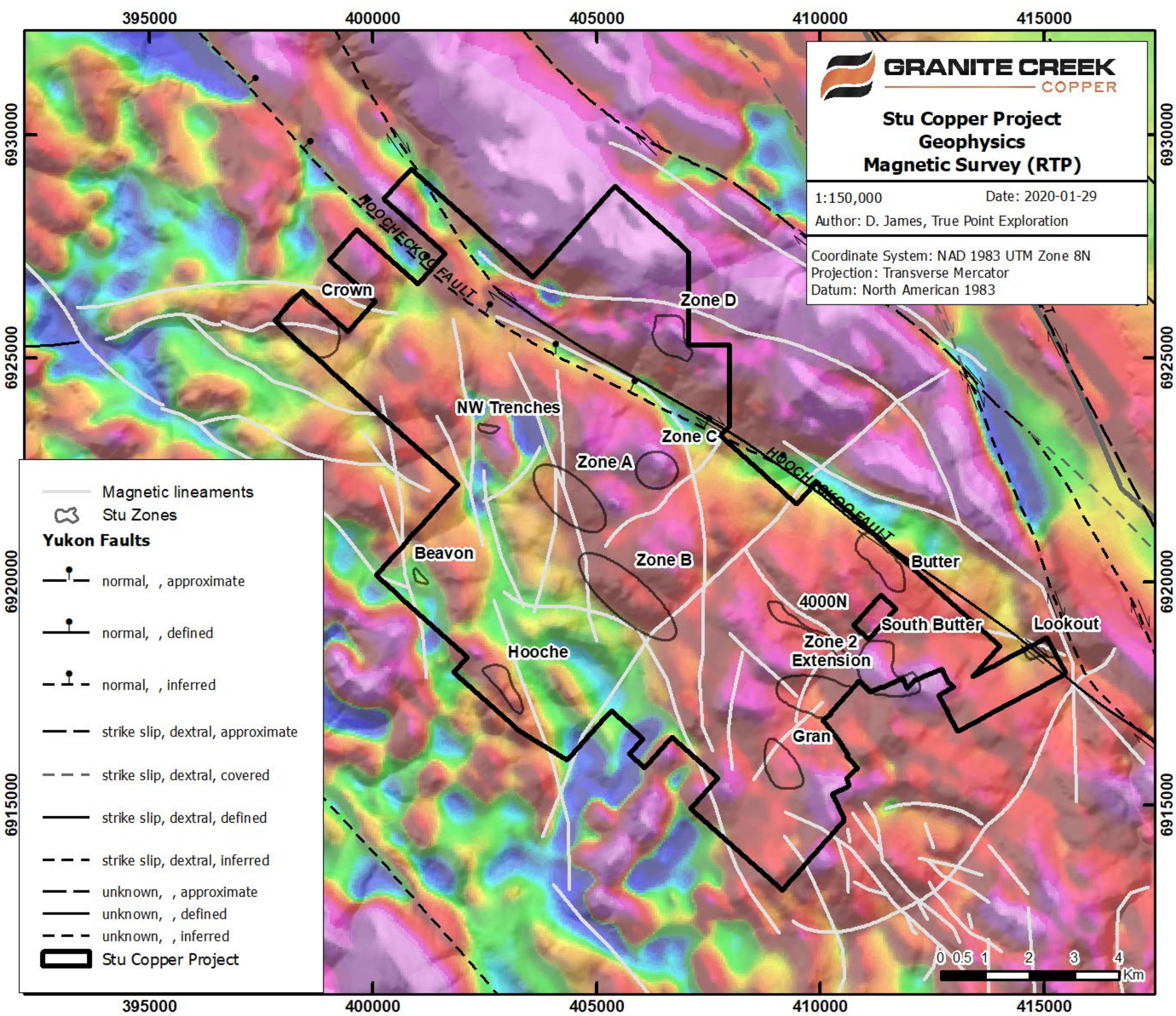
In 1989, 30 percussion drill holes were drilled along trenches in the B Zone. Most holes were oriented at 225° azimuth, with dips ranging from -49° to -63°. Three holes were oriented at 45°. Two to three holes were drilled 3 to 20m apart in each trench. Hole depths are 27 to 88m and the entire length of each hole was sampled in 5 foot (1.5m) intervals. Copper results were plotted onto sections, and copies of assay certificates are available. Most holes intersected multiple zones with anomalous copper values ranging from 100-500 ppm.

The zones can be traced from hole to hole in about half of the sections, but they do not always coincide with malachite occurrences in the trenches. The best results are:

- hole SB-4 in trench 7600E 10 feet (3m) of 0.135% Cu
- hole SB-6 in trench 7400E 5 feet (1.5m) of 0.71% Cu
- **hole SB-8 in trench B-1 5 feet (1.5m) of 0.11% Cu**
- **hole SB-9 in trench B-1 5 feet (1.5m) of 0.23% Cu**
- **Hole SB-10 in trench B-1 5 feet (1.5 m) of 0.16% Cu**

All lengths in the list above are sample lengths. The relation to true width is unknown but all holes were drilled perpendicular to mineralization.

Figure 5-3: Airborne RTP Magnetic Survey from YGS Open File 2017-38 for NTS 115I. White lines are interpreted magnetic lineaments.



5.6 Geophysical Surveys

5.6.1 1970s

Hudson's Bay carried out a magnetometer survey in 1971 over the Bay claims. Prominent magnetic highs were mapped over the granodiorite-volcanics contact, prominent narrow highs were mapped over dykes in the granodiorite and less prominent highs occurred over increased magnetite in the porphyritic granodiorite (Mitchell, 1971). Further magnetometer and electromagnetic surveys by UKHM outlined five zones of which the best four were followed up with an IP survey prior to trenching. Smith (1978) concluded that there was little or no direct correlation between geochemical anomalies and IP anomalies over Zones A, B and C. IP anomalies were generally very weak and poorly defined, tending to complexity, caused by variations in resistivity, a response expected over weathered sulphides.

The 1974 Bay claims VLF-EM and IP geophysical surveys found linear geophysical anomalies between Hoocheekoo and Nancy Lee Creeks, over the Butter showing and southwest towards the 4000N zone.

1990s

In 1993, Western Copper flew an airborne electromagnetic survey and found the 4000N anomaly. The next year, Western Copper cleared a baseline through the centre of the WC claims with cross lines at 500m spacing and stations along each line at 25m intervals. The entire grid was surveyed for total field magnetics, magnetic gradient and VLF-EM. The northwest extension of the Gran occurrence showed up as a weak magnetic anomaly associated with moderate to highly anomalous copper in soil values. It averaged 300-500m in width and 1500m in length. A 2007 assessment report by Casselman contains a compilation of historic geophysics from a 1991 ground total magnetic and VLF-EM survey and the 1993 airborne total magnetic and VLF-EM survey over the Carmacks Copper property, reaching to north of Zone A.

2000s

In 2007, BCGold carried out a 3295 km airborne magnetic and radiometric survey over an area extending from south of the Carmacks Project to north of the Stu Property. The author has not been able to find a digital version of this information, but images of the magnetic data are available in promotional material and assessment reports. Lineaments interpreted from the survey are overlain on regional scale reduced to pole (RTP) magnetic data from the YGS in figure 5.3.

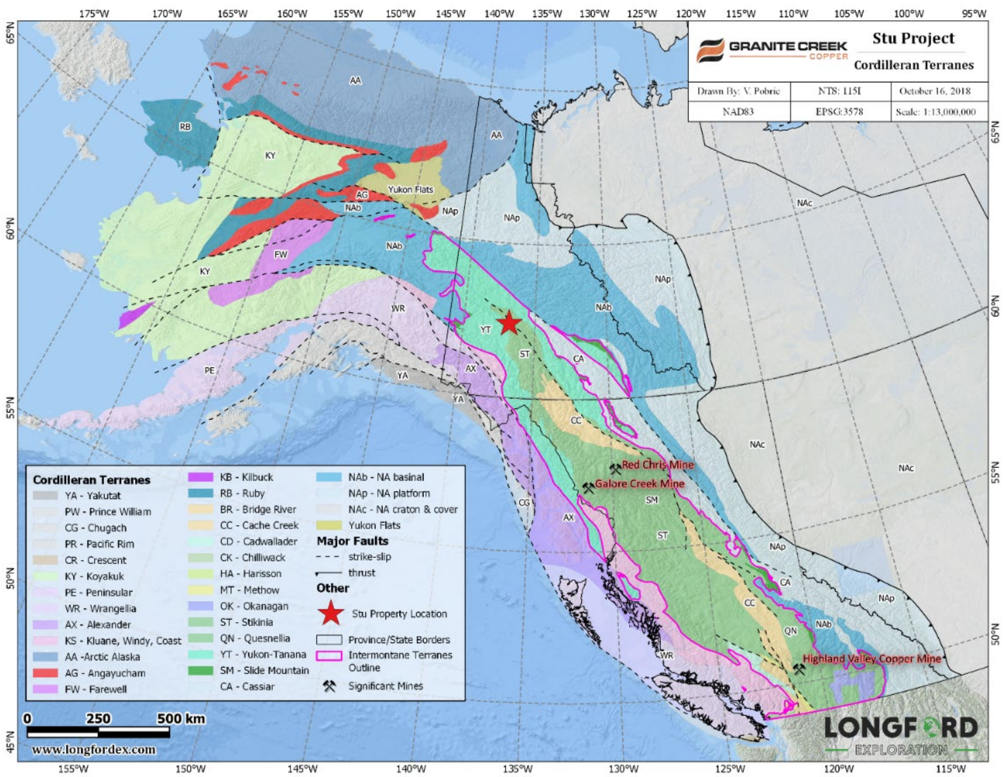
In 2008, BC Gold carried out 12.8 line km of IP surveying on the Copper claims (close to the Gran Zone) and 18 line km over the Hooche Zone. Anomalous apparent resistivity and apparent chargeability correlate well on the Copper and may be caused by changes in lithology (Barrios and Newton, 2009).

6 Geological Setting and Mineralization

6.1 Regional geology

The Stu property lies within the northern cordillera of western North America, which was formed by accretion of terranes onto the western edge of ancestral North America. The Stu property is located within the Intermontane terranes – a grouping of the Quesnellia, Stikinia and the older, mid-Paleozoic Yukon Tanana terranes. These terranes have been intruded by post-accretionary plutonic rocks and covered in part by younger volcanic rocks (figure 6.1).

Figure 6-1: Terranes of Western North America.



6.1.1 The Yukon Tanana Terrane (YTT)

The YTT is the oldest of the Intermontane terranes in Yukon. It is the largest terrane in Yukon and extends from northwest of the Yukon-Alaska border southeast to past the BC-Yukon border. In Yukon, it is bounded on the east side by the Tintina Fault, and on the west by the Denali Fault. The YTT forms a hinge zone around Stikinia and Quesnellia in the Carmacks Copper Belt. The YTT formed along the edge of the continental margin and rifted away from the continent during the mid-Paleozoic opening of the Slide Mountain ocean. In the early Mesozoic, a reversal in subduction closed the Slide Mountain ocean and moved YTT back onto the continental margin, partly covered by Stikinia and Quesnellia (Nelson et al., 2013).

6.1.2 Stikinia and Quesnellia Terranes

Stikinia and Quesnellia are two similar terranes that formed outbound of the ancestral North America, before being accreted onto the YTT and then onto the continent following the closing of the Slide Mountain ocean. They extend in a wide belt through the centre of B.C. from south of the US border up into the west central Yukon where they pinch out around the Stu Property. Both are known for belts of Mesozoic intrusions cogenetic with thick volcanosedimentary accumulations. Stikinia and Quesnellia are difficult to separate in the Yukon where they are not divided by the Slide Mountain terrane. (Nelson et al, 2013)

6.2 District Geology

The Stu property lies within the Minto Copper Belt, a linear stretch of intrusion hosted Cu (+/- Au-Ag-Mo) mineralization in the Dawson Range, south-central Yukon Territory. Centered on the Minto Mine the belt extends from north of the Yukon/Pelly River confluence southeast to the community of Carmacks. The occurrences are hosted in, or close to the contacts of, intermediate to felsic intrusive and meta-intrusive rocks of the Early Jurassic Minto Suite. Minto Suite plutons are of biotite-hornblende granodiorite to quartz monzonite composition and intrude between Stikinia and the Yukon Tanana Terrane (YTT). The Hoocheekoo Fault runs northwest from near Minto to Carmacks Copper parallel to the regional strike slip Teslin Fault which forms the valley of the Yukon River. The Hoocheekoo Fault positions Minto Suite intrusive rocks against upper Triassic Povoas Formation.

6.2.1 Layered Rocks

The youngest layered rocks are Tertiary-Quaternary Selkirk basalts (TQS) outcropping north of the Minto Mine and in pockets west of the Yukon River. Upper Cretaceous to early Tertiary Carmacks Group volcanics (uKC) are dominantly mafic flood basalts and andesites with lesser felsic flow and tuffaceous unit and local basal clastic strata.

The Upper Triassic Povoas Formation (uTrP?) of basaltic to andesitic composition, includes andesitic ash through lapilli tuffs, with lesser clastic sedimentary units ranging from coarse conglomerate to mudstone and shale. It is in fault contact with Minto Suite plutons along the Hoocheekoo Fault and locally overlain by Jurassic age Laberge Group sediments (JKT).

6.2.2 Post Accretionary Intrusions

Early Mesozoic plutons intrude Stikinia, Quesnellia and YTT suturing the terranes together. Prolific arc magmatism associated with the collision of the Intermontane terranes with ancestral North America in the Late Triassic to Jurassic is associated with the copper, gold and molybdenum porphyries of B.C and related precious metal-rich veins and stockworks (Nelson et al, 2013). Examples include: Highland Valley, Red Chris, Galore Creek, KSM, and Mt. Milligan in BC. The most prolific period of porphyry formation was around 205 mya, the age of the Minto Intrusions.

Minto Suite members the Granite Mountain Batholith (GMB) and the Minto Pluton host the Minto and Carmacks Copper deposits and the Stu Property occurrences. The GMB is composed of two different igneous suites: The Early Jurassic Long Lake Suite (EJgL) on the western side and the late Triassic Minto Suite (LTrEJgM) on the east side, where the deposits occur. Younger volcanic rocks of the Carmacks Group and Selkirk Group overlie the GMB. The south end of the Minto pluton is separated from the GMB by an east-west normal fault, south of which lie Carmacks Group rocks.

On its west side the GMB intrudes Paleozoic metamorphic rocks of the Yukon Tanana Terrane. To the east the batholith is in fault contact with upper Triassic or older mafic volcanic rocks of Stikinia. South of Williams Creek the GMB is in normal fault contact with more Carmacks Group basalts along the Miller Fault.

6.2.3 Metamorphic Rocks

Recent work on the Minto and Carmacks Copper deposits classifies the host rocks of the hypogene copper mineralization as metamorphic rocks. Kovacs recent work on the Carmack Copper deposit suggests that mineralization is hosted in foliated, folded and variably migmatitic metamorphic inliers (Kovacs et al., 2017) derived from previously mineralized Povoas Formation slabs torn up during emplacement of the GMB (Kovacs, pers. Comm). Hood's 2012 study on the Minto deposit postulates that the host rocks were emplaced into an actively deforming environment, producing sheared host rocks separated by non-sheared barren granodiorites.

The degree of metamorphism on the Stu Property determined from petrographic study is upper greenschist facies biotite zone. Igneous hornblende is locally converted to metamorphic prograde biotite. Two penetrative foliations are present; the first is the melanocratic domain and the second is less well defined and dominantly made up of biotite. Metamorphism has caused severe grain boundary reductions up to 1 cm wide in quartz and feldspar grains.

6.2.4 Structure and Folding

The dominant structural direction in the Carmacks Copper Belt is northwest, parallel to the Teslin Fault. Foliation, fractures, structural zones and contacts tend to parallel this direction which appears to control mineralization. The exception is the diorite and gabbro intrusions that have north-easterly trending contacts with the granodiorite. In Zone C foliation in the GMB trends northwest and dips steeply southwest, in Zones A and B it trends 130 and dip on average 70^{o} northeast. The Hoocheekoo Fault runs northwest just off the east side of the Stu claims. Feldspar phenocrysts, mafic minerals and mafic schlieren in the GMB are aligned parallel to the dominant direction.

Easterly to north-easterly trending younger, post-mineralization brittle faults such as the DEF fault north of Minto, the unnamed normal fault south of Minto and the Miller Fault south of Carmacks Copper have down dropped and rotated large blocks of ground. This block faulting may have caused the difference between flatter ore zones at Minto and steeper zones at Carmacks Copper. Block faulting can cause large degrees of rotation within a short distance as shown by younger sedimentary units at Minto that have been tilted up to 60^{o} (Tafti and Mortensen, 2004). At Stu, Hoocheekoo Creek and possibly Camp and Nancy Lee Creeks could be surface expressions of these structures, which show as lineaments on magnetic surveys (see figure 5.3).

Hood (2012) observed two types of rock fabrics within the Minto pluton at Minto; magmatic flow fabrics and solid-state recrystallization fabrics. Magmatic flow features observed at Minto and Stu are mafic magmatic enclaves, mafic mineral accumulations (schlieren), igneous emplacement contacts and magmatic lineation. Solid-state deformation features range from recrystallization microtextures up to shear zones metres wide.

Figure 6-2: Geology of the Carmacks Copper Belt. Source Yukon Geological Survey. See legend in next figure.

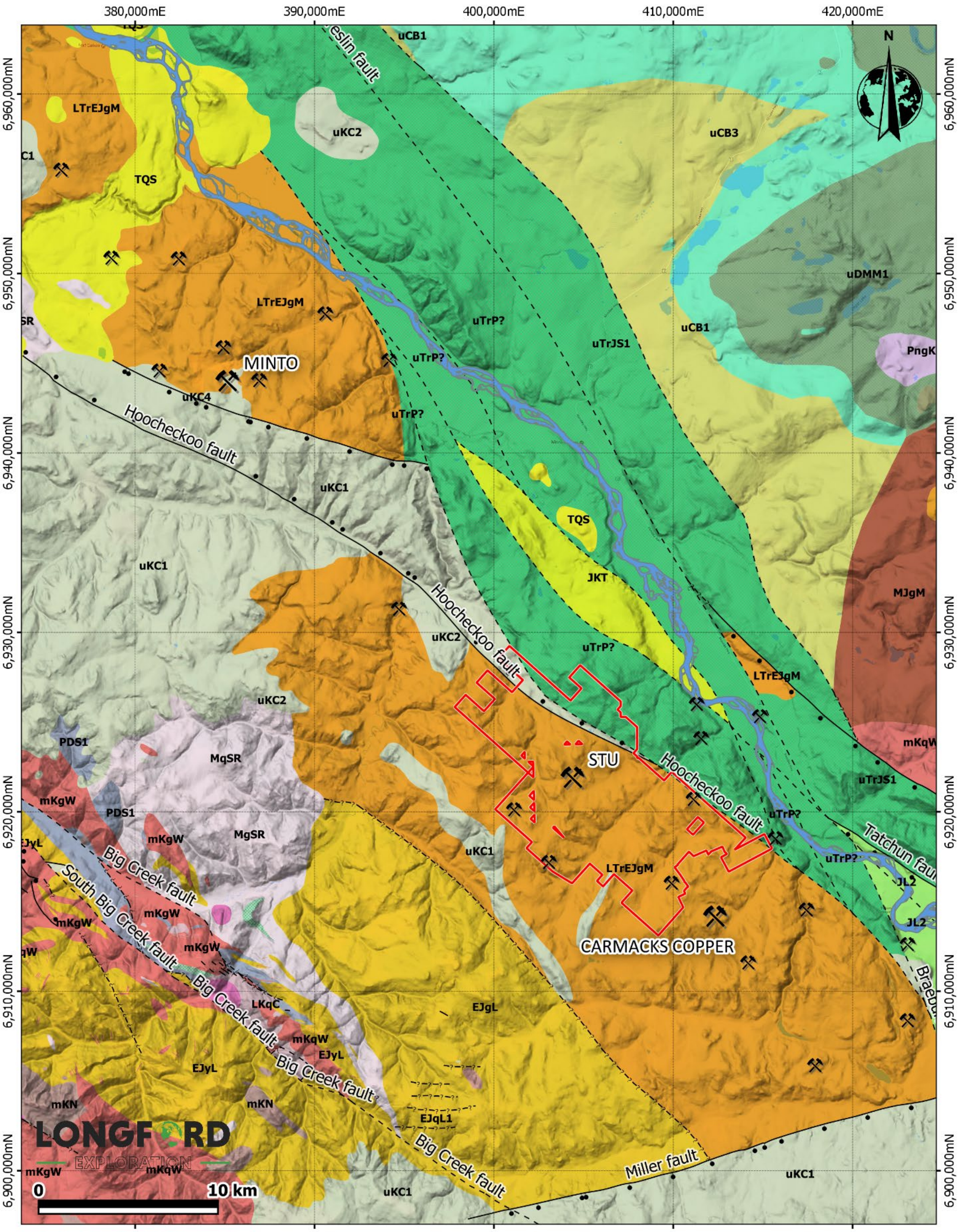


Figure 6-3: Legend for preceding map.

GRANITE CREEK COPPER

Stu Project

Regional Geology

Drawn By: V. Pobric	NTS: 115I	October 17, 2018
NAD83	EPSG: 26908	Scale: 1:250,000

Units of Interest

- TQS: SELKIRK: columnar jointed, vesicular to massive basalt flows
- uKC1: CARMACKS: augite-olivine basalt and breccia
- uKC2: CARMACKS: andesite, porphyry
- uKC3: CARMACKS: acid vitric crystal tuff, lapilli tuff and welded tuff
- uKC4: CARMACKS: sandstone, pebble conglomerate, shale, tuff, and coal
- EJgL: LONG LAKE SUITE: massive to weakly foliated Bt-Hbl granodiorite
- EJqL1: LONG LAKE SUITE: Bt, Bt-Ms and Bt-Hbl quartz monzonite to granite
- EJyL: LONG LAKE SUITE: coarse to very coarse grained and porphyritic, mesocratic Hbl syenite
- LTrEJgM: MINTO SUITE: foliated Bt-Hbl granodiorite; Bt-rich screens and gneissic schlieren
- LTrEJgbM: MINTO SUITE: Hbl gabbro
- uTrP?: POVOAS: augite or feldspar-phyric andesitic basalt flows, breccia, tuff, sandstone, argillite
- uTrJS1: SEMENOF: augite-phyric basalt flow and agglomerate, andesite

Peripheral Units

- LKdP: PROSPECTOR MOUNTAIN SUITE: coarsely crystalline gabbro and diorite
- LKyP: PROSPECTOR MOUNTAIN SUITE: syenite
- LKfP: PROSPECTOR MOUNTAIN SUITE: quartz-feldspar porphyry
- LKqC: CASINO SUITE: quartz monzonite, Bt quartz-rich granite
- LKfC: CASINO SUITE: quartz-feldspar porphyry
- mKfW: WHITEHORSE SUITE: quartz-feldspar porphyry; feldspar-hornblende porphyry
- mKgW: WHITEHORSE SUITE: Bt-Hbl granodiorite, Hbl quartz diorite and Hbl diorite
- mKqW: WHITEHORSE SUITE: Bt quartz monzonite, Bt granite and leucogranite
- mKN: MOUNT NANSEN: massive aphyric or feldspar-phyric andesite to dacite flows
- uKT: TLANSANLIN: basalt, basaltic andesite, Pl and Hbl-phyric andesite, dacite, lapiili tuff
- JKT: TANTALUS: chert pebble conglomerate and gritty quartz-chert-feldspar sandstone
- MJgM: MCGREGOR SUITE: Hbl-Bt (± Ep) granodiorite and quartz monzodiorite
- JL2: TANGLEFOOT: arkosic sandstone and minor shale, pebble and boulder conglomerate
- uCB1: BOSWELL: siliceous argillite, siltstone, sandstone, chert conglomerate, volcanic breccia
- uCB3: BOSWELL: micritic limestone, bioclastic limestone, marble
- PngK: KELLY SUITE: strongly foliated Hbl ± Bt tonalite, Hbl diorite to granodiorite
- CPSM4: SLIDE MOUNTAIN: brown weathering, variably serpentinized ultramafic rocks
- MqSR: SIMPSON RANGE SUITE: foliated metagranite, quartz monzonite and granodiorite; augen granite
- MgSR: SIMPSON RANGE SUITE: Hbl-bearing metagranodiorite, metadiorite and metatonalite
- uDMM1: MOOSE: massive and pillow basalt, amphibolite and greenstone
- uDMM3: MOOSE: intermediate metavolcanic and metavolcaniclastic rocks
- DMF1: FINLAYSON: intermediate to mafic volcanic and volcaniclastic rocks
- PDS1: SNOWCAP: quartzite, psammite, pelite and marble; minor greenstone and amphibolite

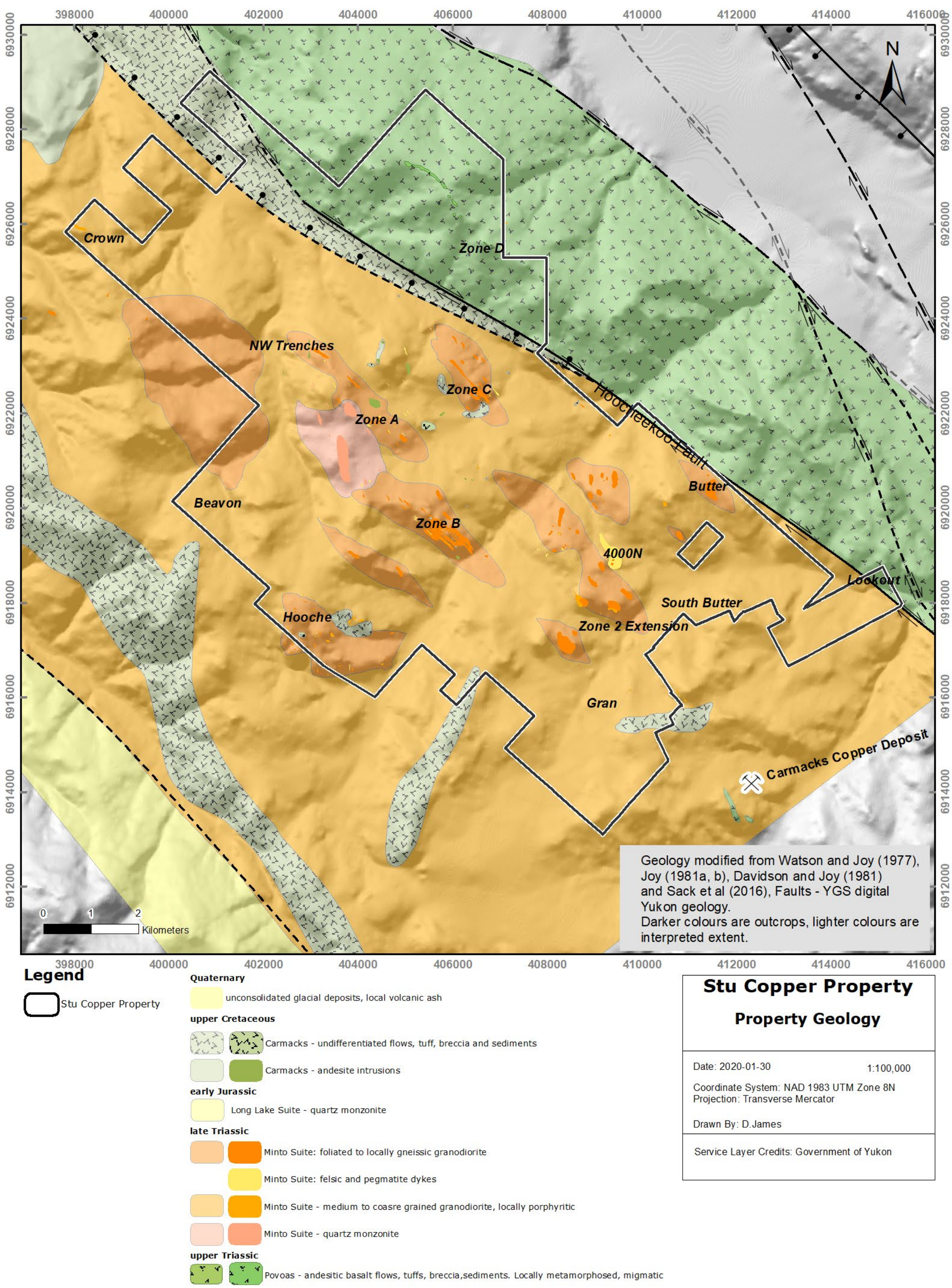
Faults

- Normal
- Strike Slip
- Unknown

Other

- Stu Property
- Mineral Occurrences (Cu-Au-Ag)
- Yukon River

Figure 6-4: Stu Property Geology Map



6.3 Property Geology

On the Stu Property, Minto Suite granitoid is the dominant rock type. It is cut by aplite, microgranite and pegmatite dykes and contains lenses of foliated to gneissic quartz-feldspar-hornblende-biotite granodiorite which contain most of the mineralization. Locally outcrops of Carmacks volcanics overlie and mafic intrusions intrude the other rock types (Figure 6.4). Compilation of historic mapping for the claims is ongoing. Pertinent geology from Minto and Carmacks Copper is included where it has a bearing on Stu geology.

The Hoocheekoo Fault runs down the east side of the property separating the GMB from the Povoas Formation. Smaller east-west cross structures are expressed as creeks such as Camp, Nancy Lee and Hoocheekoo.

The most common phase of the granodiorite is dark grey to grey on weathered surfaces and grey white to grey on fresh surfaces. It is medium grained with lesser fine grained or coarse-grained occurrences and is typically porphyritic with 5-15% potassium feldspar phenocrysts. When foliated it has a slightly higher mafic content and foliation is weak to strong. The gneissic phase is fine to medium grained with a moderate to strong foliation or banding. An extreme variation in mafic content has been observed. The genesis of the foliation or gneissic texture is unclear, but recent work by Kovacs suggests it is a mixture of migmatized Povoas Formation inliers and the GMB. Where this texture is seen at Minto it is classified as the assimilation zone and is similar in appearance and copper grade.

A similar suite of igneous rocks is found at Minto and Carmacks Copper although there are some differences. At Carmacks Copper quartz diorite and diorite phases of the GMB are more common than at Minto. A fine grained biotite schist or amphibolite is an additional rock type that host mineralization. The biotite schists have very low quartz content and a high mafic content which is attributed to their origin from assimilated rafts of Povoas Formation andesitic to basaltic pyroclastic tuffs, agglomerates or breccias. It is expected that more of the schists or amphibolites will be encountered on the southern part of the Stu Property closer to Carmacks Copper.

6.4 Mineralization

Copper mineralization (with occasional Au or Ag) is contained in foliated to gneissic granodiorite, formed either as shear zones, according to Hood's interpretation at the Minto mine or as assimilation zones where migmatites and granodiorites were mixed, according to Kovac's interpretation at the Carmacks Copper deposit.

There are 3 advanced and 7 early-stage zones of mineralization on the Stu Copper Property. In all zones with exposed bedrock, foliation strikes northwest. In Zones A and B the dip is moderately to steeply northeast and in Zone C steeply southwest. Copper sulphides occur within the foliated granodiorite and gneiss where they replace mafic minerals. Copper oxides have in turn replaced the copper sulphides where the mineralization has been exposed to oxidation. Copper bearing minerals malachite, azurite, chalcopyrite, bornite, chalcocite and tenorite (copper wad) have been observed in hand samples and drill core. Magnetite is locally abundant in both mineralized and unmineralized rock. The highest gold and silver values are associated with bornite-rich sections.

Both the foliated and gneissic phases host copper mineralization. In trenches and outcrop, resistant reefs of silicified gneiss or foliated granodiorite occur which have more chalcopyrite and bornite compared to nonsiliceous sections. These reefs are resistant to weathering and form outcropping ridges in Zones A, B and C and low ridges along trench floors.

6.4.1 Hypogene Mineralization

In hand samples and thin sections disseminated chalcopyrite is the most common copper sulphide. Bornite is seen in drill core, but rarely on the surface. In the high grade intersection in drillhole 80-14 bornite and chalcopyrite replace mafic minerals. This is also seen in thin sections from surface samples. Possible gold grains <0.5 microns were observed in two thin sections.

Primary copper minerals at Carmacks Copper are bornite and chalcopyrite with a zoning from bornite on the north through chalcopyrite to pyrite and pyrrhotite on the south. Other sulphides and opaques are magnetite, gold <5 microns, pyrite and pyrrhotite. Molybdenite, native bismuth, bismuthinite, arsenopyrite, and visible gold are rare.

Primary sulphides at Minto are: chalcopyrite, bornite, minor pyrite and rare chalcocite. A silver telluride is observed in polished sections and native gold and electrum form inclusions in bornite grains. Coarse free gold is sometimes observed on chloritic fractures cross-cutting sulphide mineralization and may be caused by secondary enrichment. At Minto copper mineral zoning is from bornite on the west towards thicker and lower grade chalcopyrite on the east.

6.4.2 Supergene Mineralization

In hand samples and thin sections, malachite is the dominant supergene copper mineral with lesser tenorite, chalcocite, azurite, chrysocolla and possible brochantite. The minerals display textures indicative of transport and open space fill. In sample 82527 (1.07% Cu and 106 ppb Au) malachite and Fe-oxihydroxides were interpreted to have replaced primary Cu-sulphides that had previously replaced mafic grains. Hornblende was absent in samples with the highest supergene copper mineralization.

At Carmacks Copper much of the exposed portion of the deposit is oxidized from 30-100m below surface, and the rock is weathered and permeable. A few primary sulphides are found in the oxide zone and form disseminations or narrow massive bands. Secondary mineralization is not restricted to a single rock type and has migrated from its source in the supergene layer. (Casselman and Arseneau, 2011). Migration of supergene mineralization has not been seen at Stu, where the mineralization occurs almost exclusively in foliated or gneissic granodiorite.

Supergene copper minerals are rare at Minto and are assumed to be the eroded remnants of foliated horizons or remobilized copper along brittle faults and fractures. Malachite is most common, followed by chalcocite, azurite and native copper. Earthy hematite indicates oxidation zones.

6.4.3 Mineralized Zones

There are 10 named mineralized zones or occurrences within the current Stu Property configuration.

Zone A

Zone A in the centre of the Property is the largest zone and has had the most work done; bulldozer trenching and diamond drilling. Historically Zone A extended for 1 km based on trench and drillhole locations, though incomplete historic assay results cannot confirm if there was mineralization in all trenches and drillholes. An underlying circular soil anomaly underlies the zone. The intersection of two north-northwest trending magnetic lineaments is coincident with Zone A.

In 2015, three old trenches were deepened, and two new trenches were dug over a 350m area at the north end of the zone. Surface work has confirmed 350m of mineralization from trench 400W to trench 2015A. Mineralization is open ended and further trenching (infill trenches, deepening old trenches and extending old trenches) is required to extend the mineralization to the 1 km extent reported in historic reports.

Copper grades of 2.8 to 3.5% were returned over 12 to 14m widths in drill core (widths are reported sample lengths from composite samples and the true thickness is unknow). On surface, Cu grades over similar widths are less than 0.4%. A similar relationship is seen with Ag and Au. Increased amounts of bornite and chalcopyrite below the oxidized layer may account for the higher subsurface grades when compared to surface grades.

Zone B

Zone B has the most rock exposure and the largest mapped extent of assimilation zone rocks. Mineralization in Zone B is locally high grade over narrow widths and limited percussion drilling did not show consistency below surface. A sample collected from Trench B1 in 2013 ran >1% Cu, 14.8 g/t Ag and 0.553 g/t Au over 0.5m (the sample was overlimit for Cu, but not assayed), and a sample from Trench B3 ran 0.55% Cu and 4.4 g/t Ag over 2m. In 2015 selected trenches were deepened and 2 new trenches were dug. Zone B may be down dropped and potentially rotated from Zones A and C, exposing a higher level of the mineralized system, prone to more oxidation and migration of copper minerals like Carmacks Copper.

Zone C

Zone C was first discovered by Hudson’s Bay in 1971 as a copper in soil anomaly coincident with electromagnetic anomalies. It shows 110m of mineralization between trenches 9+50E and 14+50E reaching a width of 25-30m in trench 14+50E. The zone is open at both ends. Mineralization is significant with values up to 1.59% Cu and 3.7 g/t Au along northwest trending fractures.

Prior to trenching, there were 2 separate showings of malachite in Zone C, one at the northwest end measuring 150m by 60m and a smaller showing 30m by 45m at the southeast end close to Camp Creek. The dominant host rock in the northwest showing is a medium grained quartz-feldspar biotite gneiss with >50% mafic zones. At the southeast showing, malachite is hosted in a strongly foliated, fine-grained granitoid. Three trenches over 350m of strike length were excavated in 1979 over the northwest showing, but none over the southeast showing. No results are available and no new trenching has been done in this zone. Three holes were drilled in 1980 but did not intersect mineralization. All holes were drilled to the southeast, which may be parallel to the orientation of the foliated zones.

This zone has received the least work of the three; there are only 4 trenches and the second outcrop showing near Camp Creek does not appear to have been trenched. Although small the zone has high copper values along with gold up to 3.7 g/t (sample 526140) and silver up to 15.09 g/t (historic sample 2512). Repeated rock sampling in trenches 11+50E and 14+50E has returned samples in the 0.3-1.6% copper range. UKHM mapping shows that foliated granodiorite continues either side of the trenched area.

Zone D

Zone D was discovered in 2011 by Northern Tiger Resources during a soil sampling and mapping program across their DEL claims (Pollries and Ouellette, 2013). Zone D is located 350 southwest of an anomalous soil grid (As, Bi and Mo) and is described as a 25cm malachite-bearing fracture zone oriented 160/70 NW hosted in an andesite augite-feldspar porphyry outcrop. A 30 cm chip sample across the fracture zone ran 0.972% Cu and 0.741 g/t Au. Following compilation work in 2019 which highlighted a significant soil anomaly in the area, the Zone became a priority target for the field program.

During the 2019 program the zone was visited, sampled and 4 soil lines were run over the zone. The location, description and tenor of mineralization was confirmed with the best rock sample running 0.737% Cu and 0.407 g/t Au. See section 8.5 for details on the 2019 program.

Figure 6-5: Zone D. Andesite porphyry with malachite and hematite. Sample 148709 ran 0.74% Cu and 0.406 g/t Au.

Gran

The Gran occurrence is a weak magnetic anomaly associated with moderate to highly anomalous copper in soil values. It covers a loosely defined area approximately 1000m long by 600m wide. Two to three drill pads and nine trenches are in the general area, most likely from work by UKHM in 1982. In 2018 a soil sample grid delineated a weak copper in soil anomaly northwest of Gran (James, 2019).

Butter

The Butter showing is a 450m long MMI copper in soil anomaly on the east side of the Property. It is in the same location as a set of copper in soil anomalies from the NOON claims that correlated with a northwest trending magnetic anomaly attributed to the presence of amphibolite (Coughlan and Joy, 1981).

South Butter

The South Butter zone is located near the south edge of the Property against the Carmacks Property. It overlaps with northwest trending anomalous copper in soil values from UKHM's soil programs. In 2009 BC Gold found malachite bearing aplite with weak epidote and muscovite alteration trending 315°. A grab sample from a 0.5m subcrop exposure assayed 0.33% Cu (Pautler, 2015c).

4000N

The 4000N zone is a 2 km long coincident copper in soil and geophysics anomaly that was detected by airborne geophysics in 1993 and followed up in 1994. The highest copper in soil value was 323 ppm (MacNaughton, 1994). Prospecting in 1994 did not locate any outcrop, but the area has been burnt since that time which may expose some outcrop. There is no record of further surface work on the zone, but an overgrown road leads to within 1 km of the zone.

Zone 2 Extension

Zone 2 is the discovery outcrop located on Copper North's ground about 200m south of the Property boundary. Samples over the zone in the trench averaged 1.0% Cu over 45.7m. In 2014 Copper North returned to Zone 2 and expanded the strike length to 500m to the southeast through trenching and drilling on IP chargeability anomalies. Trenching on the north extension uncovered a cross fault which truncates the zone 20m northeast of the discovery outcrop (www.coppernorthmining.com).

Although Zone 2 is on Copper North's ground, and appears to be truncated, an offset extension of the zone may continue onto the Stu Property. At Carmacks Copper some of the mineralized zones are offset by cross faults and that pattern may continue north of Zone 2.

Hooche

The Hooche Zone is underlain by foliated granodiorite. MMI soil sampling and ground geophysics work has been done by BCGold when they held claims in the area. Hooche was visited during the 2019 program (see section 8.5).

Crown

The Crown Zone is a soil anomaly and pair of trenches on the northwest tip of the property. It was visited in 2019 (section 8.5).

Beavon

The location of Beavon is uncertain. It is located south of a large area historically mapped as quartz feldspar gneiss, but associated with only scattered soil anomalies. The showing was not visited in 2019.

Figure 6-6: Hoochee Zone outcrop of assimilation zone (migmatized Povoas and granodiorite host).

6.5 Alteration

Alteration at Stu is biotite-rich potassic, similar to Minto. Airborne radiometric and residual total field maps (Shives et al., 2002) show zones of increased potassium values and higher magnetic field levels proximal to the Minto mine. A slightly weaker and dissected version of this pattern is repeated at the Stu Property. The main alteration mineral is biotite, followed by magnetite, quartz and secondary potassium feldspar overgrowths on plagioclase. (Hood, 2012)

At Carmacks Copper no alteration minerals related to mineralization have been identified. Epidote and potassium feldspar are related to the intrusion of post-mineralization pegmatite dykes. Clay and sericite are attributed to weathering. Silicification in the form of veinlets is rare. Alteration of mafics to chlorite, hornblende to biotite, rare garnets, carbonate and anhydrite appear related to assimilation and metasomatism of gneiss units. (Casselman and Arseneau, 2011).

A north trending zone of intense alteration is mapped through Zone A. Two lineaments along aeromagnetic lows intersect at Zone A, one north trending and the other northwest trending. In trenches and core, zones of intensely clay altered granitoids may be the surface expression of the lineaments. Whether the clay zones are caused by faulting or alteration is yet to be determined.

7 Deposit Types

7.1 (Deposit type) Exploration Model

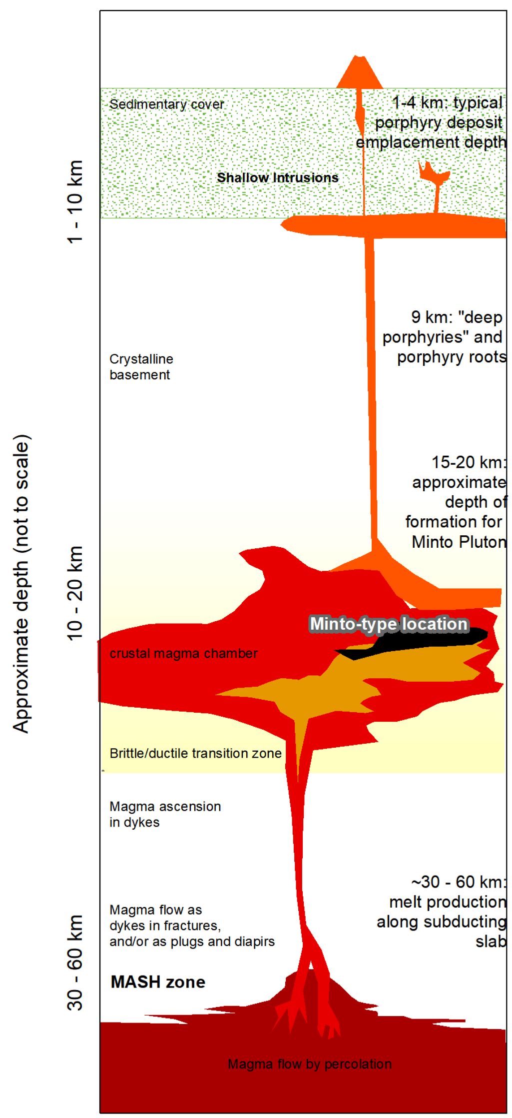
The deposit type at the Stu is a variation of that seen at Minto and Carmacks Copper although there is no broad agreement on the classification for those deposits.

Over its history, the Minto deposit has been classified as a metamorphosed or digested redbed copper deposit metamorphosed volcanogenic massive sulphide deposit, deformed copper-gold porphyry, magnetite skarn, iron oxide copper gold and a shear-hosted deep porphyry. Regardless of the label, there is a consensus that the deposits formed at crustal levels deeper than 20 km, within the ductile deformation zone, that there is a strong structural control on mineralization and that the deposit is a variant of the porphyry model.

Nelson et al, 2013 describe Minto and Carmacks copper as probably representing the deeper levels of the BC porphyries or an IOCG system. Recent thesis work by Nikolett Kovacs on Carmacks Copper assigns the deposit to the same deep-seated BC alkalic porphyry model, although complicated and enriched by ingestion of a previously mineralized protolith at high temperatures (Kovacs et al., 2016).

Hood's thesis on Minto (Hood, 2012) stays with a deep porphyry model, but he believes that deformation of the intrusion as it was emplaced is the cause of the foliated host rocks. Deformation caused grain size reduction and left space for deposition of hydrothermal mineralization. The increase in biotite caused continued deformation of the shear zones and remobilization of sulphides.

Figure 7-1: Simplified diagram of deep-seated Minto-type porphyry model (Revised from Hood, 2012)



8 2019 Program

8.1 Overview

Between June 17 and September 10, 2019 True Point Exploration carried out 2 phases of work on the Stu Copper Property. The first phase from June 17-21 was conducted on the northeast side of the property and consisted of prospecting, mapping, soil and rock sampling and staking. The second phase from August 2-September 10, consisted of line cutting, soil sampling and a 23.9 line kilometre ground IP survey over the southern end of the property and mapping, prospecting and soil and rock sampling over selected outcrops on the remainder of the property. The work was carried out by True Point Exploration and contractors and funded by Granite Creek Copper with assistance from YMEP. Over both phases, 24 rock samples and 265 soil samples were collected.

The program took 42 days of field work, 218 person days, the average number of people in camp was 5 and the cost was $264,741 using YMEP rates. Figure 8.1 shows the areas worked on.

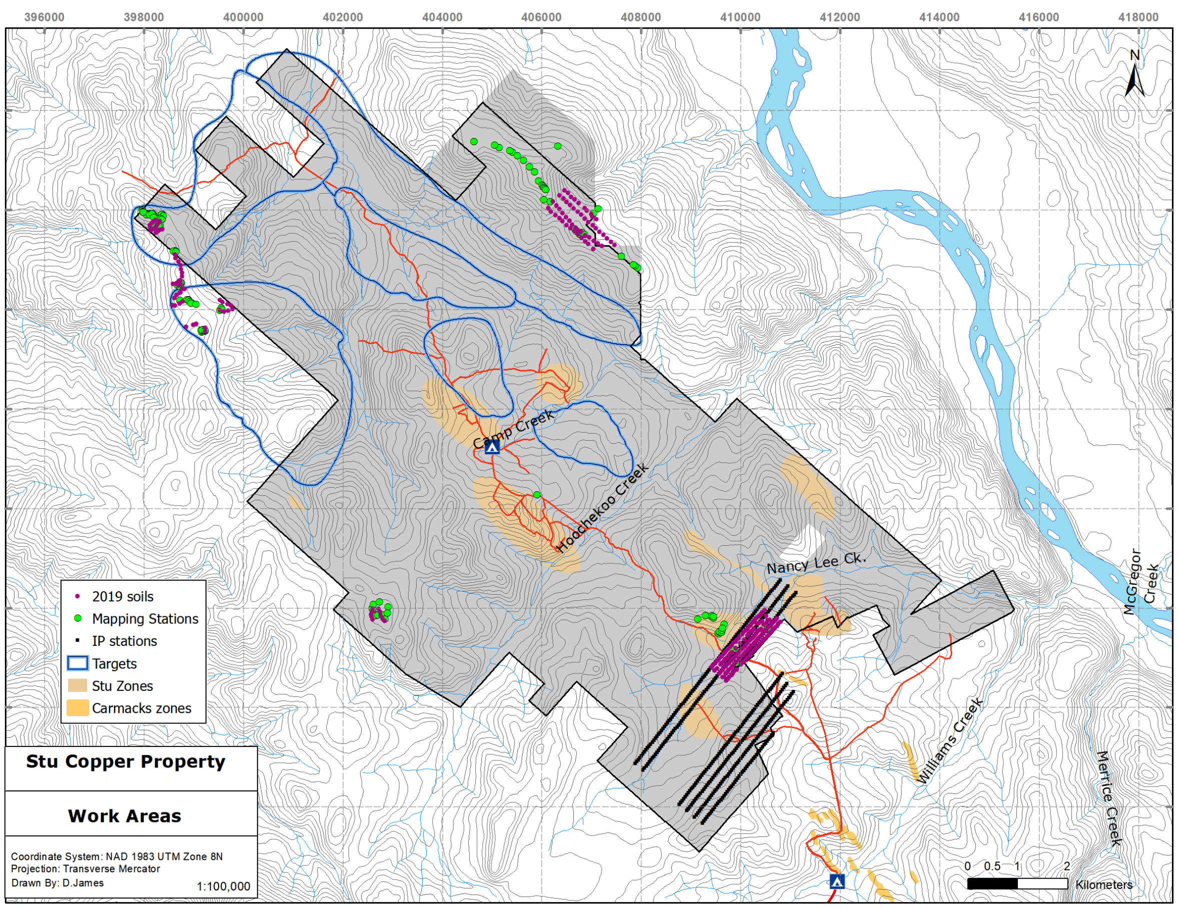


Figure 8-1: Target areas outlined in blue were determined prior to the start of the program. Final work areas are shown by purple and green dots and black ines. The black outline is the shape of project prior to staking of additional claims. Current project shape is shown in grey.

A helicopter was used to access all work areas outside of the southeastern part of the property. A Hughes 520 helicopter was used because it is small, manoeuvrable and has a protected tail rotor. This allows it to land and take off from small pads and reduced the need to cut large landing pads. Many helicopter landings were hover exits until strategic pads were cut.

8.2 Staking

21 new claims were staked in the northeastern part of the property to cover open ground (figures 3.1 and 8.1). Staking was completed over a day and a half. All posts were constructed and tagged in Keno prior to the job and then bombed from the helicopter. Next, the lines were walked and staked by Mike Linley who registered and transferred the claims to GCX on June 26th 2019. Existing claim-posts were tied onto where they could be located. All staking was done with pink ribbon to delineate it aerially from rock sampling (orange) and soil sampling (blue). Lines with sizable timber present were blazed along the staking direction.

The ground is covered by tight bush and deadfall from an earlier burn. Moving in this country is very slow-going and access was limited upon arrival.

8.3 Line Cutting

A 4-man linecutting crew from Vision Quest cut 23.9 line kms over 7 lines. The lines extended from previous IP lines surveyed in 2008 and new lines were cut above and below the previous survey. It took 19 days to cut the lines. Progress was slow and some of the lines deviated from the original location by up to 100m. The inexperience of the crew and inadequate supervision contributed to the poor performance.

Figure 8-2: Vision Quest Line Cutters heading out to the work site.

8.4 Ground IP Survey

A 2D IP ground survey was carried out by Aurora Geosciences over 19 days along the line cut by Vison Quest. The field report is in Appendix D. Further interpretation in the form of pseudosections combining the 2008 and 2019 work programs is to be initiated shortly after this report is submitted, so no conclusions can be drawn yet.

8.5 Mapping, Prospecting and Sampling

Four areas were mapped, prospected and rock samples and soil samples collected during the 2019 programs. All areas were accessed by helicopter and chosen to follow up on soil anomalies or known mineralization on claims that had not been part of the Stu property. Sample spreadsheets with descriptions and analytical results are provided in MS Excel format, and assay certificates in Adobe pdf format in Appendix B.

8.5.1 Zone D

Zone D on the northeast side of the property is situated within a strong copper-in-soil anomaly. It was the highest priority target and was visited at the start of the program. Seven rock samples and 54 soil samples were collected from the area.

Out of 7 samples collected from the East Target, sample 1481709 of mineralized volcanics from Zone D returned 0.74% Cu and 407 ppb Au, while 3 other samples (1481708, 710, 712) returned anomalous copper and gold (see table below). Sample 148712 is significant because it was collected 1.2 km SE of Zone D, suggesting the mineralization continues along the structure south of Zone D.

See figure 8.5 for a detailed map of the Zone.

Sample ID	Sample Type	Description	Cu ppm	Ag ppm	Au ppb
1481707	float	Pervasively epidote-altered Povoas volcanics with patchy MnO on fractures	147	Tr	12.9
1481708	outcrop	altered Povas volcanics with quartz-clay veinlets	**203**	tr	9.6
1481709	outcrop	Feldspar porphyry with 3-5% malachite + 5-10% hematite. magnetite is destroyed	**7375**	3	**406.7**
1481710	outcrop	altered and fractured granite	**325**	tr	**82.1**
1481711	outcrop	Povoas volcanics with limonite +/- hematite and patchy MnO . Joint orientation 175/83W.	12	Tr	Tr
1481712	outcrop	Very fine grained aphanitic mafic dyke + vfg trace arsenopyrite; local magnetite. Collected 1.2 km SE of 709 and along trend.	**180**	tr	2
1481713	outcrop	Sparsely epidote-limonite-MnO altered amygdaloidal baslts with odd tarc e salmon [pink vienlets.	77	Tr	tr

In general, prior soil sampling highlighted a Cu-geochemical anomaly with an NW trend. Similarly, the Povoas Fm basalts exhibit localized penetrative fabric, assumed as shear, oriented NW. Along this trend an increase in limonite-hematite and MnO mineralization along fractures was observed. As a result of these findings, four NW-trending soil lines were laid out. Soil sample spacing was ~100m and distance between the lines was ~ 150-200m. All soil samples were collected with a soil auger and sample material was placed in brown-soil kraft bags labelled with the BV Labs tag. In the field a scribed aluminum tag with the soil number was left on blue-ribbon to mark soil sample locations.

Figure 8-3: Povoas volcanics from the northeast side of the property.

Close to half of the samples were above the 95th percentile for soils on the Stu property. The highest value soils are close to Zone D and together with historic soils form a northwest trending anomaly parallel to regional faulting and the structure hosting Zone D. Povoas volcanics were mapped along the ridge except for one site where chalky white, granular rocks were observed pseudo-cropping in the area proximal to the old Northern Tiger wall-tent camp. This may indeed not be a felsic source but an alteration. Very limited time was spent in the location as a result of the tight project time-frame and this location, as well as another spot noted aerially should be revisited in the future.

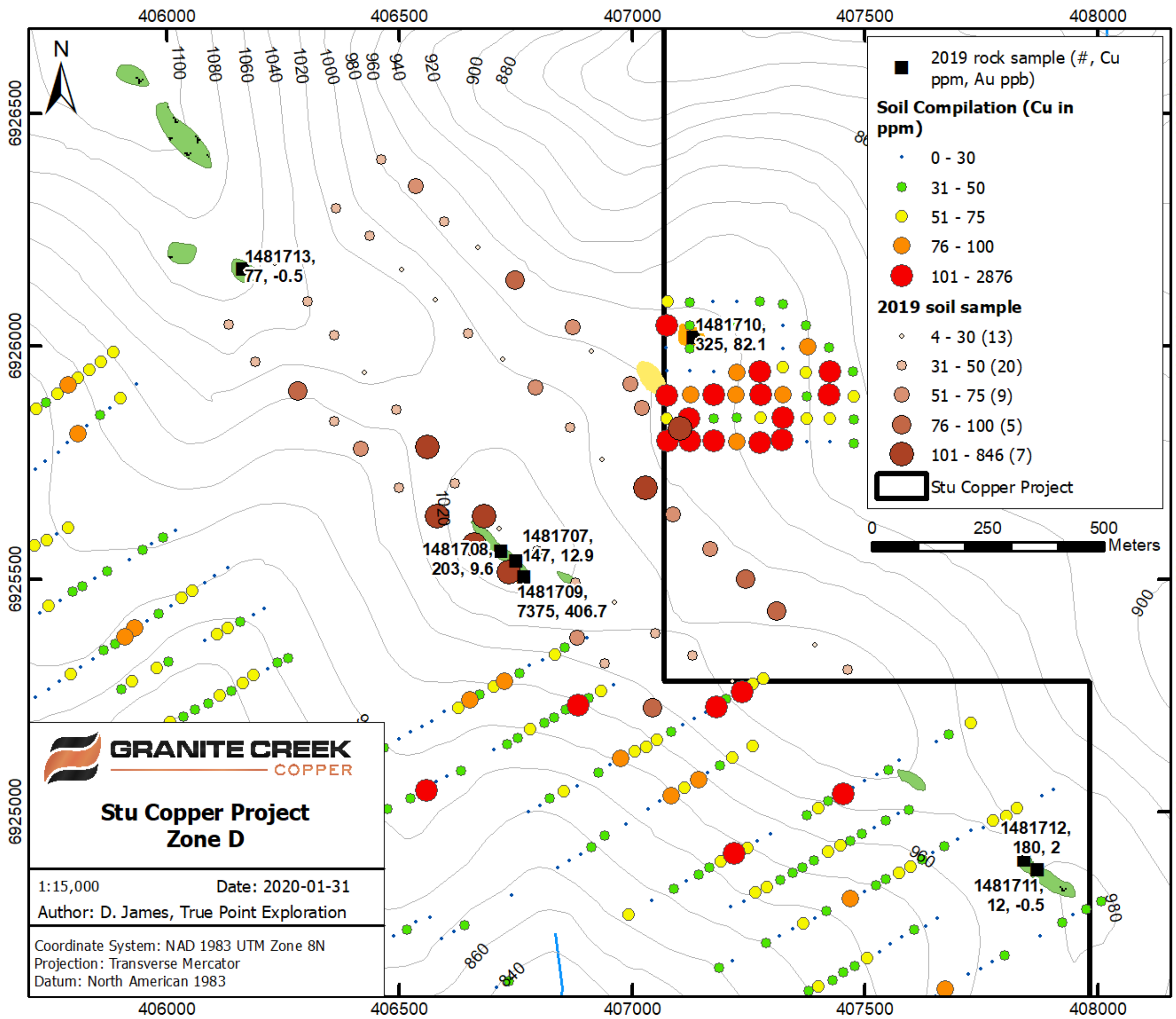


Figure 8-4: Zone D mapping and sampling. See property geology map for rock type legend.

8.5.2 Crown

Figure 8-5: Historic trenches at Crown.

The Crown Zone at the northwest end of the property was chosen as a target following compilation of historic soil samples and a review of historic mapping. A cluster of copper-in-soils values >30 ppm with scattered values >75 ppm Cu fit the criteria for a soil anomaly. Historic mapping south of Crown and overlapping onto unstaked ground, showed a large area underlain by quart-feldspar gneiss, the favourable host rocks for Minto style mineralization. Twelve rock samples and 51 soil samples were collected. Two previously unknown trenches were found during the traverse. Both were mapped and sampled. Neither trench appeared to reach true bedrock, but may have done when originally dug.

All rock samples collected in the area were low in copper and gold. The highest copper value was 16 ppm and 8 samples were below detection limit. Gold values ranged from trace to 2.7 ppb. No mineralization was seen in the trenches or in outcrop. Two samples, preliminarily mapped as amphibolites, ran anomalously in Ni, Mn, Fe, (+/- Zn, Ca, Cr, Mg) suggesting a mafic origin. Whether they are of Povoas origin is still to be determined.

Soil samples produced higher values than rock samples. Copper ranged from 4 to 68 ppm, and Au from trace to 6.6 ppb.

8.5.3 Hooche

Three rock samples of foliated granodiorite and limonite, and 10 soil samples were collected from the Hooche Zone. None of the sample were anomalous, despite the relative abundance of foliated granodiorite. Hooche was not sampled during the large soil surveys from the 1970s but was lightly tested with MMI soil sampling by BCGold. See figure 8.7

8.5.4 Zone 2 Ext.

Two rock samples were collected during a mapping traverse over Zone 2 Extension but neither returned anomalous results. No mineralization was found during the traverse and the host rock was a non-foliated to weakly foliated granodiorite. A grid of 150 soil samples were collected south of the area and is discussed in the following section. See figure 8.8.

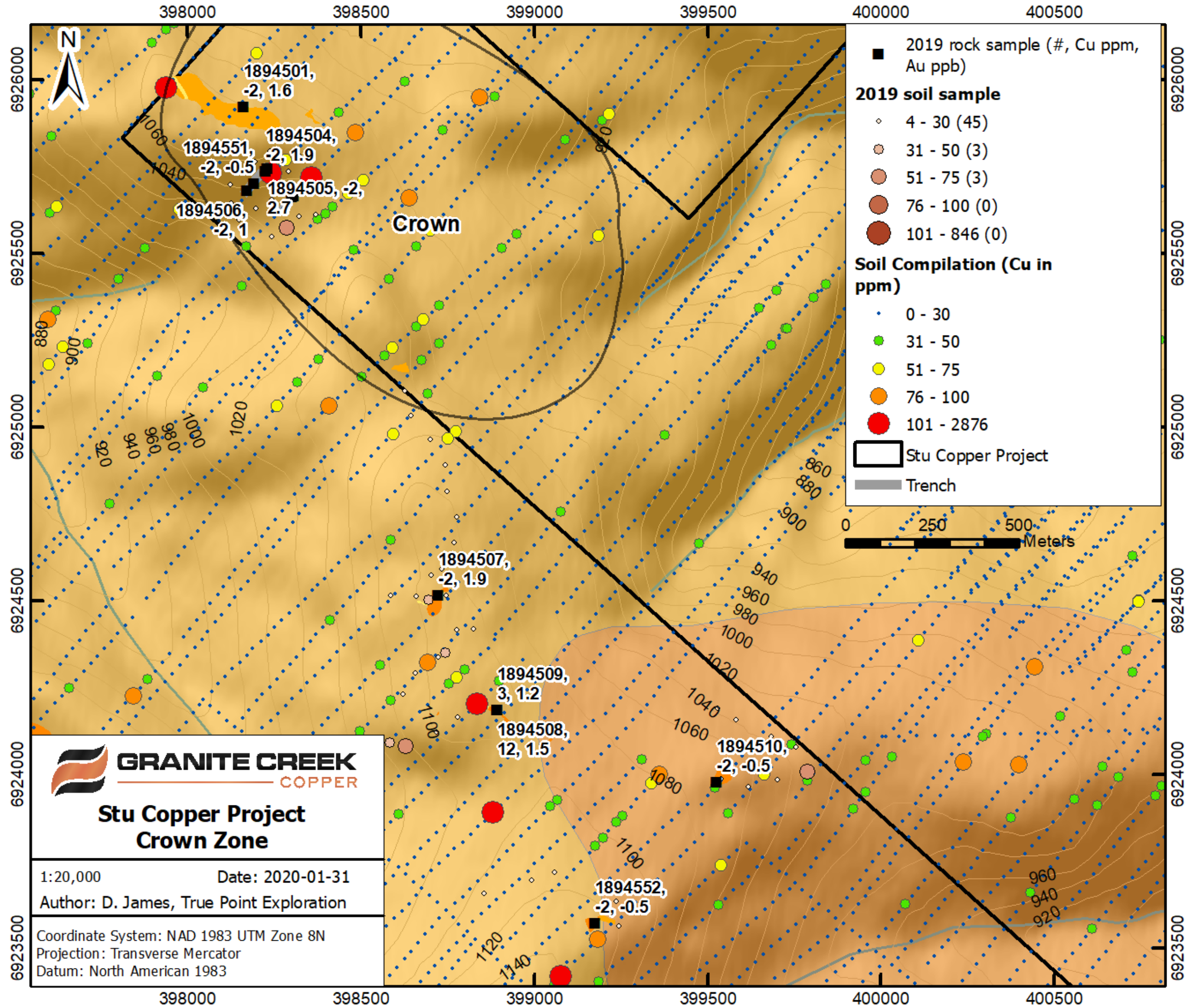


Figure 8-6: Crown Zone map. See property geology map for rock type legend.

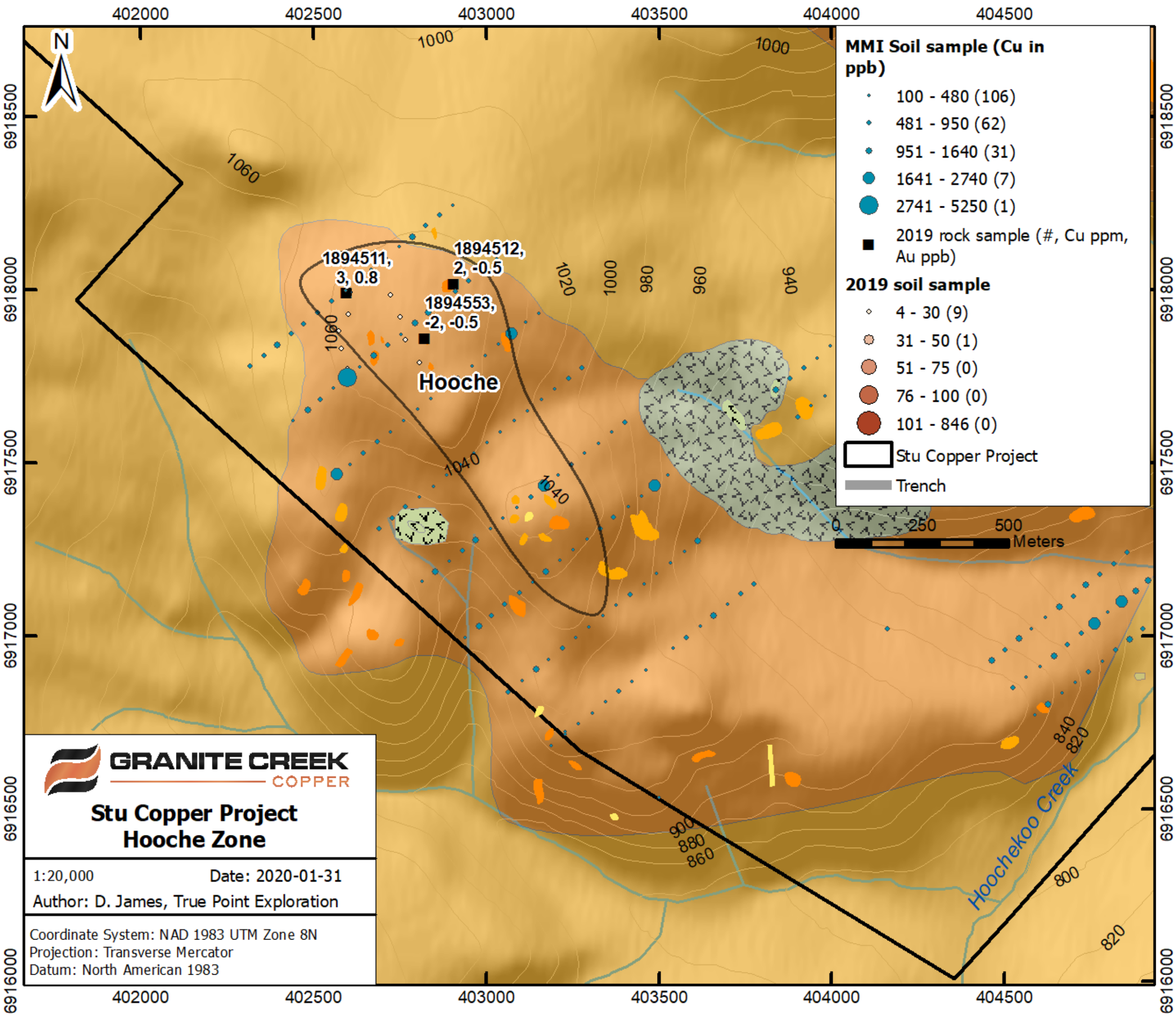


Figure 8-7: Results from Hooche Zone. See property geology for rock type legends.

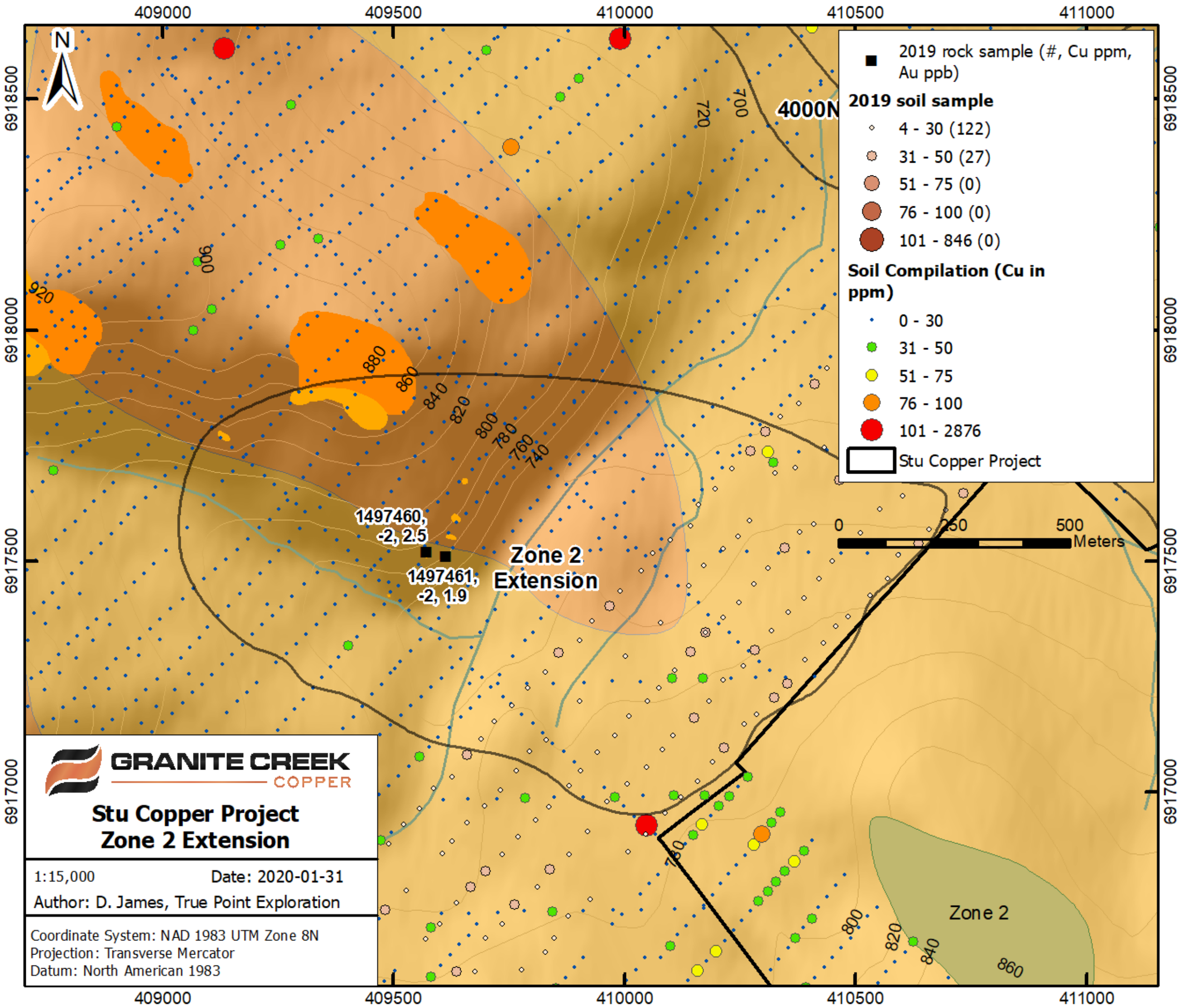


Figure 8-8: Results from Zone 2 Extension. See property geology map for rock type legends.

8.6 Grid Soil Sampling

8.6.1 Methodology

Between August 5-11, 2019, 150 soil samples were collected along 4 lines, 1500m long and spaced 100 m apart along the southern border of the property where it adjoins the Carmacks Project (figure 8.1. The location was chosen because it:

1. Overlapped with the IP lines
2. Bordered the Carmacks Copper property
3. Covered part of the Zone 2 Extension target area
4. Was lightly sampled during previous surveys

Sample locations were recorded using a hand-held GPS unit in NAD83 UTM Zone 8N, and in field notebooks. Each soil sample was placed into individually labelled Kraft paper bags which had been labelled and the assay tag inserted prior to collecting the sample. Sample sites were marked using aluminum tags labeled with the sample number affixed to a nearby tree or shrub. In locations were a sample could not be collected, the sample was skipped and the bag discarded. Descriptive information collected for each sample includes quality, colour, percent organics, percent fragments, slope percent, depth, horizon and comments.

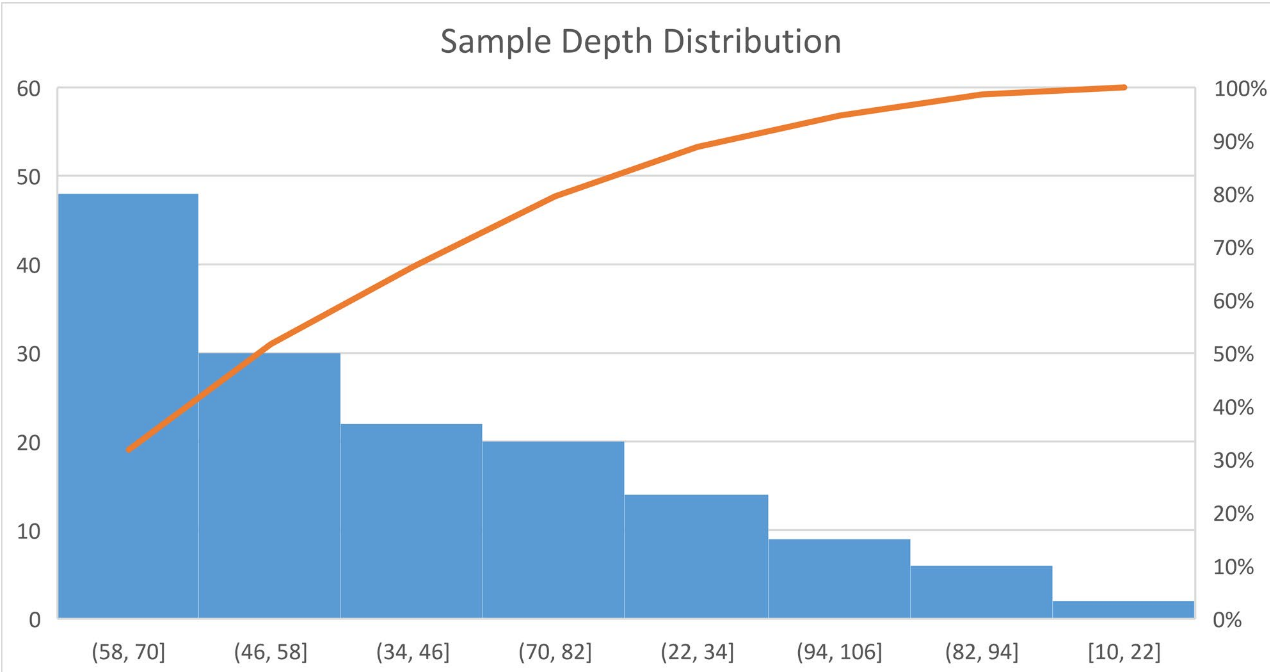
Soil samples were sent to Bureau Veritas in Whitehorse to be dried and screened to -180 microns. The fine fractions were analyzed for 35 elements using a multi acid digestion and using inductively coupled plasma emission spectroscopy technique (ICP-ES) (technique code MA300), and for Au by a 15g aqua regia digestion and ICP-MS (technique code AQ115).

Three field duplicate samples were collected for QA/QC control. Duplicate samples were collected by digging a second hole near the original and taking another sample.

8.6.2 Results

The bulk of the samples were collected from the C horizon (followed by a mix of B and C (41 samples) and then 27 from the B horizon. The aim of sampling was to get as deep as possible, ideally down to bedrock or till if it could be reached. The sample horizon was variable because some of the lines crossed areas where there were bogs, permafrost, cryoturbation, mixing of horizons, glacial moraines and a silty, abandoned stream channels. Sample depths ranged from 10 to 100 cm, with an average depth of 59 cm. All samples were collected using soil augers.

Figure 8-9: Distribution of soil sample depths. Just under 80% of samples were collected between 46 and 70 cm depth.



Volcanic ash was encountered in 21 samples and permafrost in 32. Three duplicates is not sufficient to calculate statistics, but a check of the sample results shows them to similar with the exception of lead in 1480380 and 1480381 where the values are 6 ppm in the former and below detection in the latter.

Table 8-1: Statistics for elements of interest.

Element	Low	High	Mean	Median	Std deviation	# of samples below detection limit	Method Detection limit	Comments
Cu	12	47	25	25	6.4	0	2 ppm	
Au	0.5	68.6	1.89	1.2	5.83	45	0.5 ppb	
Ag	1	1	NA	NA	NA	141	0.5 ppm	Most below detection
K	0.91	1.85	1.58	1.61	0.14	0	0.01%	Distribution can map rock type or alteration.
Na	1.25	2.98	2.3	2.34	0.27	0	0.01%	Distribution can map rock type or alteration.
Mg	0.55	1.95	0.94	0.93	0.16	0	0.01%	Distribution can map rock type or alteration.
Mo						150	2 ppm	All samples below detection

Overall copper results were low, ranging from 12 to 47 ppm, with no obvious clustering or pattern of higher values (figure 8.11). Past soil sampling on the property indicates that anomalies present as clusters of >30 ppm copper with occasional values exceeding >100 ppm that have an overall northwest to north trend. Gold results range from 0.5 to 68.6 ppb. The lack of previous multi-element sample programs means that there is limited information to determine the characteristics of gold soil anomalies. A soil survey in 2018 produced gold results from 1 to 109 ppb. The 2 highest soil values from the 2019 grid survey (10.1 and 68.6 ppb) are located in the northeast part of the grid close to the project boundary (figure 8.12).

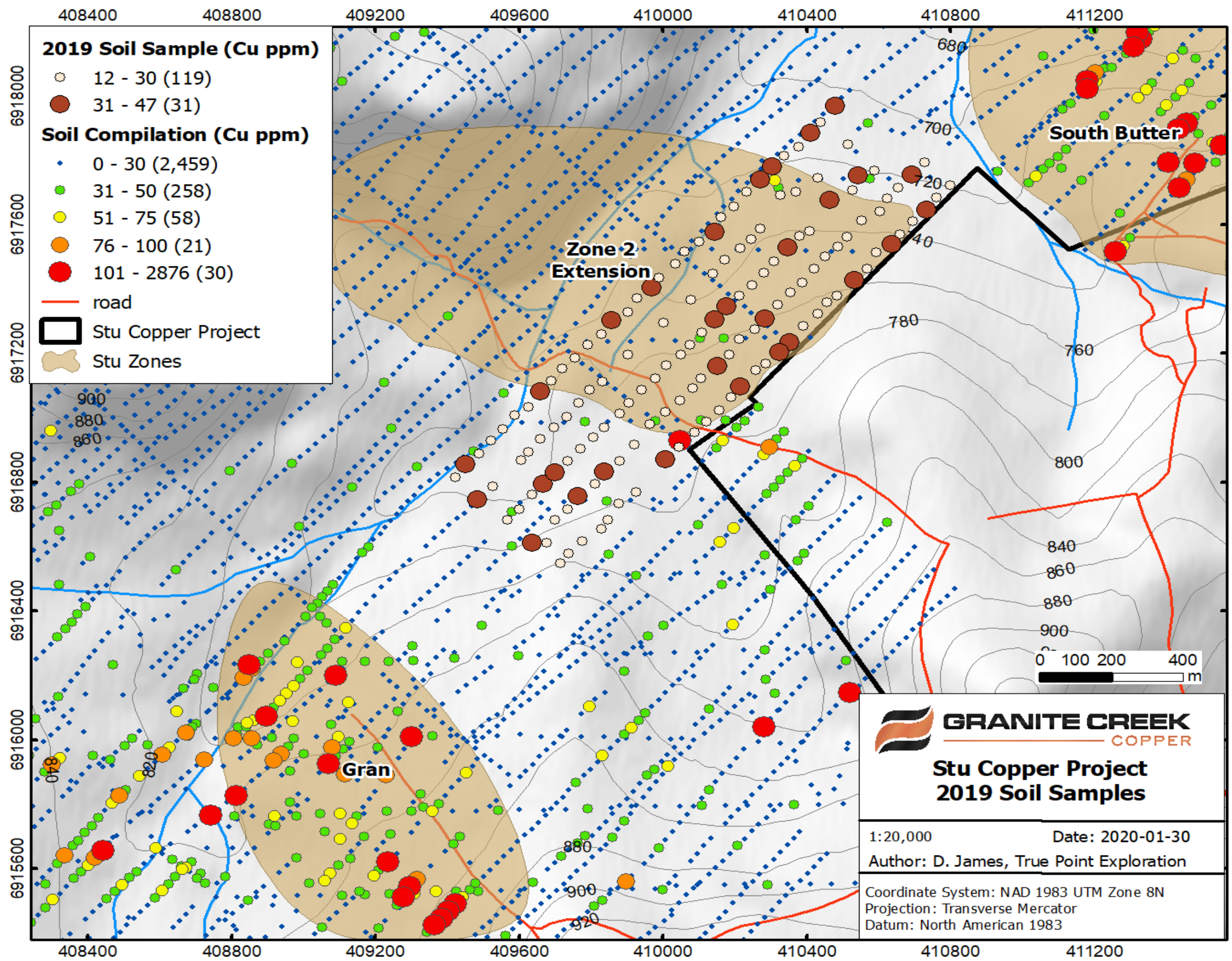


Figure 8-10: 2019 copper-in-soil results compared to historic sampling. Due to the lower range of values for the 2019 soils, the samples are plotted in 2 groups using the same values as the historic work but a different colour scheme to assist in distinguishing the samples.

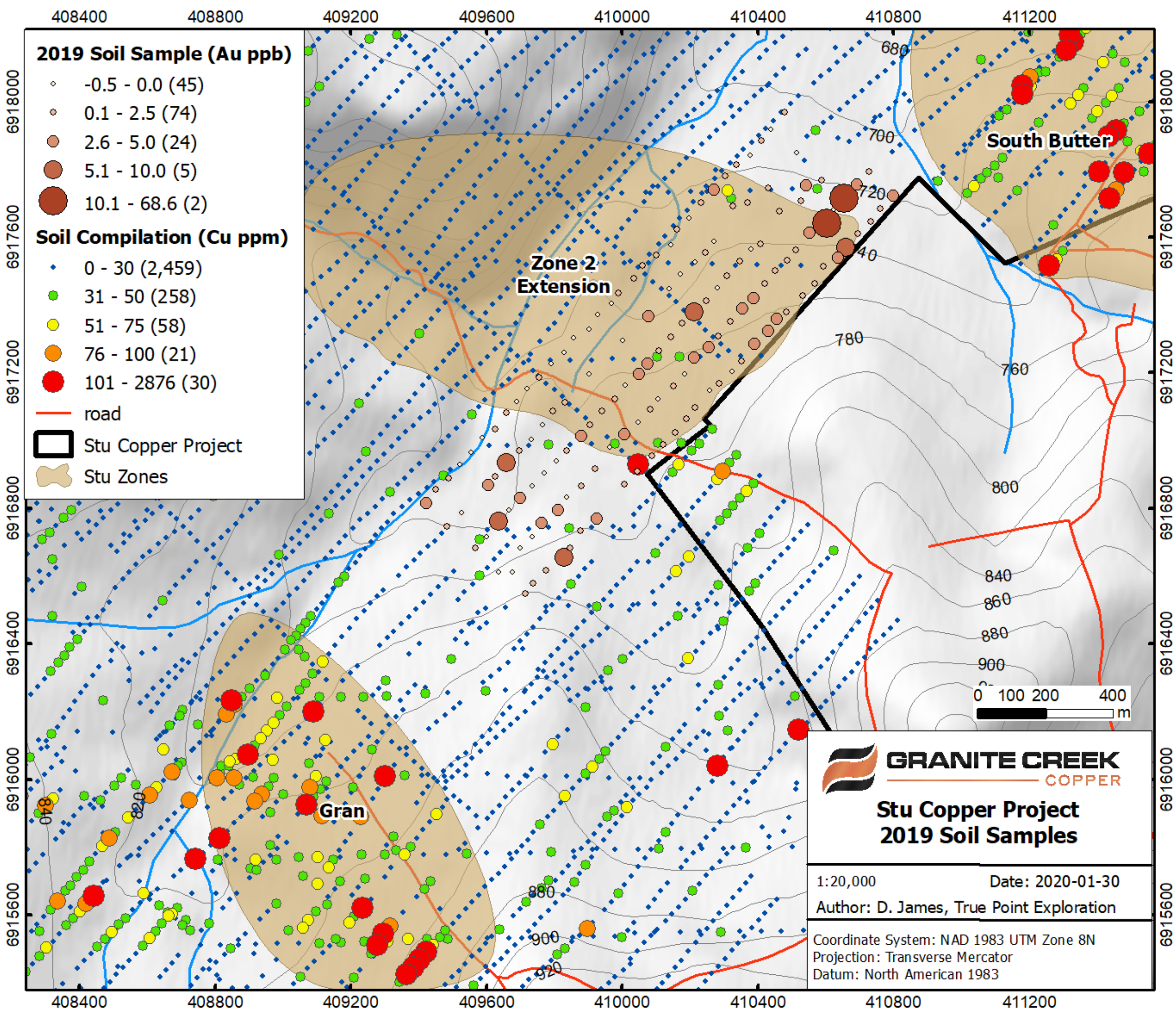


Figure 8-11: 2019 gold-in-soil results compared to historic sampling. The historic samples were only analysed for copper, but are shown as a comparison. The 2019 samples are plotted with a diferent symbology to distinguish them from the historic samples.

9 Interpretation and Conclusions

9.1 Property

The Minto Copper Belt has been proven productive, with one operating copper mine and one deposit advancing towards production. The Stu property lies on strike between the two deposits, displays the same style of mineralization, and has shown preliminary copper values of a similar calibre from the limited drilling results available.

Over the last decade, exploration of Triassic-Jurassic porphyry targets in the northern Cordillera has taken significant new directions. The discovery of deep, structurally controlled porphyry roots at the New Afton mine near Kamloops and at Red Chris in northern B.C. and expansion of reserves at Minto, has created new mining opportunities and a shift in focus from broad, low-grade, shallow targets to much higher grade, albeit less accessible resources (Nelson et al, 2013). This information is not necessarily indicative of the mineralization on the Stu Copper Property.

The Stu Property is along a continuum of mineralization from the flat-lying sulphide dominant deposit at Minto to the near vertical, oxide dominated deposit at Carmacks Copper. The A Zone more closely resembles Minto, with sulphide dominant mineralization while the B Zone appears more like the type of mineralization seen at the Carmacks Copper project with higher grade oxide copper at surface. Since the last drilling program at Stu in 1989, work at Minto and Carmacks Copper has added considerably more understanding of deposit characteristics and geometry, and these insights can be applied to exploration on the Stu Property. A systematic relogging program with an awareness of geological characteristics present at Minto and Carmacks that are associated with higher copper values will aid considerably in understanding the mineralization geometry. The mineralized schist inliers seen at Carmacks and the migmatites with convoluted flow textures that host net textured sulphides as seen at Minto are key features at those deposits associated with higher copper values. Whether relogging core, prospecting or planning drillholes, the search for these features should drive exploration at Stu.

The paucity and age of drilling results from the historic work at Zones A and C leads to uncertainty of how much subsurface mineralization is present. This risk can be mitigated through relogging and resampling of old core and new infill drilling to confirm and potentially extend mineralization observed during the relogging program. Implementation of a systematic QAQC program and the use of total copper and nonsulphide copper analyses methods will also increase confidence in the results.

Compilation of soil sampling on the Stu Copper property has revealed of soil anomalies over the 15km length of the property. The strongest is an annular anomaly 5km in diameter encompassing Zone A, Zone B and Zone D. The low area in the centre of the ring is situated north of Zone C. Other significant anomalies occur in Gran and South Butter and at the northwest end of the property. Anomalies appear as clusters of >30 ppm copper with occasional values exceeding >100 ppm that have an overall northwest to north trend. Historic soil samples were only analyzed for copper but are an effective tool for exploration. Further infill and overlap soil sampling should be done to provide multi-element geochemical coverage over key areas, and extension sampling completed in areas lacking coverage.

Outside of the advanced zones, the other named zones have not been systematically tested nor are results available for the limited trenching and drilling that have been done. The general elongate structure of the zones and the results from limited sampling indicate that there is potential for the zones to host mineralization similar in geometry and mineralization to Zones A, B and C.

The advanced zones on the Stu Copper Property are drill targets, with Zone A the highest priority. Resampling of the rehabilitated core, new drilling and continued trenching should be used to produce a resource model of the zone.

9.2 Soil Sampling

The lack of outcrop raises the importance of soils as a consistent layer of information over the property. Using the soil compilation as a guide, priority areas for further soils are on the southeast side over the Beavon and Hooche showing towards Zone B and the northeast corner above Zone D. As further soil sampling programs are carried out on the property, more information should be collected until a consistent methodology and nomenclature is developed.

There is a mixed glacial history on the property due to its position at the at the limit of Cordilleran Pleistocene glaciation. Valley glaciers extended along major valleys and tributaries depositing glacial drift on lower slopes and valley bottoms, while steep slopes and uplands remained unglaciated but are covered with a blanket of colluvium. Grus (decomposed bedrock that looks like sand or silt) is common and an indicator of nearby or buried outcrop. A surficial geology map should be produced prior to sampling to assist in consistently identifying the material being sampled. Soil profile pits in the vicinity of soil sampling will help in refining the surficial geology map and increase understanding of what is being sampled and which horizon to sample.

A systematic QAQC program should be carried out on soil samples consisting of blanks, field and sample duplicates and if feasible, an unmineralized, multi-element standard reference material.

10 Exploration Recommendations

The Stu Copper Property merits continued work. There are multiple exploration targets and depending on the budget available they can be advanced separately or simultaneously. Zones A, B and C are advanced targets ready for drilling and mechanized trenching. Early stage targets include potential extensions of Zones A and C and the named zones on the rest of the property. The discovery of strong Cu anomalies early in the property's history defined Zones A, B and C and focused work onto those areas, almost to the exclusion of other more dispersed anomalies on the property. Future exploration program will focus on the early stage targets, searching for both new zones and extensions of the advanced zones.

10.1 Advanced Targets

10.1.1 Drilling

Zone A is the best target for drilling. New holes should be strategically located between old holes to both confirm historic results and generate new information. Holes should be planned to provide enough information to generate an inferred resource. In general, new holes should be deeper than historic holes to test for deeper sulphide mineralization, with a minimum vertical depth of 150m below surface. If possible, oriented core should be used for at least some of the holes, especially those nearest the high grade historic holes. Depending on results of early holes, further drilling should be conducted both to the east and west of old holes. The strength of soil anomalies suggests that additional targets remain for testing.

The old core should be relogged and photographed and susceptibility measurements and XRF readings collected. Previously unsampled sections, especially any that are mineralized can be resampled.

10.1.2 Trenching

New trenches should be excavated at the advanced targets, and more old trenches should be cleared of overburden and deepened or extended where required. Systematic chip sampling, geological mapping and magnetic susceptibility measurements should be carried out.

Zone A historically had the best results of the three zones and recent sampling has confirmed this. The ground north and east of trenches 11+50W is not suitable for trenching. Overburden is deep and permafrost makes digging difficult. This area would be better tested through drilling. Further north where the ground slopes up should be suitable for trenching if anomalies are present.

Zone C has received the least work. There are only 4 trenches and the second outcrop showing near Camp Creek does not appear to have been trenched. Follow up work is recommended.

Zone B should have additional work to understand the geometry of mineralization before advanced work continues. Old trenches should be mapped and XRF readings collected.

10.2 Early Stage Targets

10.2.1 Soil Sampling

A good portion of the property has historic soil sampling analyzed for copper. Infill soil sampling should be considered in certain areas to acquire multi-element geochemical coverage and extension sampling should be completed in areas not previously covered. In general, soil sampling is an effective tool for identifying mineralization for additional follow up work. Areas of focus include:

1. Areas of the current claim configuration that were not covered by previous work. This is especially important on the southwest side where prospecting uncovered foliated granodiorite in areas underlain by magnetic lineaments.
2. Wet areas or places where numerous samples could not be collected will be resampled using alternate material or analysis methods.
3. The burns that swept through part of the property may have uncovered new outcrop or thawed permafrost and these areas will be revisited.
4. Test lines over selected known anomalies and zones to collect multi-element geochemistry.

When sampling these areas, samples should be collected that overlap historic grid so that the surveys can be levelled. MMI soil sampling has been successfully used in the area and Ah horizon sampling has proven success over buried porphyries in BC (assuming enough Ah horizon is present). On north aspect slopes and in valleys where permafrost is an issue vegetation sampling may be suitable. When any resampling occurs it should be analyzed using a multi-element geochemical package.

10.2.2 Rest of Property

Compilation and interpretation of previous work needs to be finished and the showings require prospecting before trenching can occur on the early stage targets. At some of the zones, Gran in particular, deep overburden (>15m) makes it difficult to reach bedrock.

Extension of Zone A. There are soil anomalies north of Zone A coincident with two magnetic lineaments and soil anomalies east of Zone A extending past the Nic showing. These areas are candidates for possible ground geophysics and trenching.

Extension of Zone C. There is an outcrop at the southern end of Zone C that was not trenched and further south there are soil anomalies between Camp Creek and Hoocheekoo Creek that could cover an extension of Zone C. Mapping shows foliated granodiorite in this area. South of Zone C, a soil anomaly extends towards Zone B.

Gran Zone. Deep overburden will be a concern as will Carmacks volcanics rock that cover the south end of the zone. Few of the historic trenches reached bedrock and the drillholes may have failed to do so as well. A prospecting and trenching target in areas of shallower overburden. Further Ground IP lines should be run north of this zone, building on the information collected in 2008 and 2019. Surveys should be spaced to penetrate down to 300m to reach sulphides that may underlie the overlying oxides and volcanics.

South Butter. Existing trenches could be cleaned and deepened with follow up mapping and prospecting. The 2019 IP lines should be extended to cover this zone and new lines added to the south to the boundary with the Carmacks property.

Zone 2 Ext. Historic soils did not produce an anomaly in this area, and there were only weakly anomalous samples in the 2019 survey. However, Zone 2 did not show up as soil anomaly, so the lack of an anomaly does not mean there is no mineralization. More Ground IP lines should be run north of the 2019 lines.

4000N. Prospecting and geophysics are recommended in this area for follow up.

Butter. The Butter zone has a smaller soil anomaly than Gran or South Butter and is not accessible by road. It is a target for hand trenching depending on helicopter availability and depth of overburden. The area has been burnt and no outcrop was detected from the air in 2008 (Pautler, 2015c)

Hooche and Beavon. There are north trending magnetic lineaments and moderate dispersed soil anomalies associated with the mapped extent of foliated granodiorite and gneiss, which extends outside of the current property boundary. The 2019 work in these areas was disappointing, but only a small area was visited.

10.3 Proposed Exploration Budget

This section outlines a two phase program of geophysics, mapping, prospecting, and soil sampling, followed up by diamond drilling, contingent on successful results from phase 1 and ongoing compilation of historic work.

Table 10-1 Proposed exploration budget.

	Description	**Estimated Cost (CAD $)**
Phase 1	**25-day program of geophysics, prospecting, mapping, and soil sampling based out of Carmacks camp**	
	Camp, fuel, travel and logistics costs, expediting, camp rental (335 person days @ $150 per day)	50,400
	Labour costs (5-person crew (2 geologists, 2 field technicians/soil samplers, camp person/cook).	35,000
	Geophysics costs (30 line kms of ground IP @ $5000 per km – cost based on 2019 program, includes fuel, camp costs etc.)	150,000
	Line cutting (30 line kms @ $1600 per km - cost based on 2019 program)	48,000
	Geochemical analyses for rock, core and soils (includes QAQC)	14,000
	Helicopter (15 hours @ $1600/hr)	24,000
	Report, GIS	4,000
	Phase 1 total	**$325,400**
Phase 2	**Drilling, camp upgrade to accommodate drill crew, road upgrading to support increased 4WD use, trenching, soil sampling (30 day program)**	
	Camp upgrade to accommodate drill crew	15,000
	Camp costs (360 person days @ $150 per person per day, fuel except excavator and drill, vehicle rentals, expediting)	54,000

	Labour costs (6-person crew (project manager, junior geologist, 2 field technicians/soil samplers, First Aid/Cook, Camp Maintenance).	$71,000
	1500 m of diamond drilling @ $300 per metre (production assumed 60 m per day)	450,000
	Excavator costs (trenching, road and pad building, camp upgrading, drill moves)	60,000
	Geochemical analyses for rock, core and soils (includes QAQC)	8,500
	Helicopter (10 hours @ $1600/hour)	16,000
	Interpretation of results -15 days	12,000
	Phase 2 total	**$686,500**

11 References

Archer, A.R., 1971. Geology and Geochemistry of the Williams Creek property, Yukon. Assessment report #060203.

Archer, A. R. 1973. Report on 1972 geochemical diamond drilling and trenching program, Williams creek Property. Report for Dawson Creek Joint Venture. Assessment report #060114.

Aurora Geosciences Ltd. and Bruce, J.O., 2017. Reprocessing of Yukon magnetic data for NTS 115I. Yukon Geological Survey, Open File 2017-38. The raw files can be found at: http://data.geology.gov.yk.ca/Reference/79464

Barrios, A. and Newton, G., 2009. 2009 geophysical report on the Copper property. Report for BCGold Corporation. Assessment report #095198.

Casselman, S.G., 2008. 2007 Assessment report for the Carmacks Copper project. 2 Volumes. Report for Western Copper Corporation. Assessment report #094996.

Casselman, S. and Arseneau, G., 2011. 2011 Qualifying report for the Carmacks Copper Deposit, Yukon Territory. Report for Copper North Mining Corp. and Carmacks Mining Corp. SEDAR.

Coughlan, L.L. and Joy, R.J., 1981. 1981 geological and geochemical report on the NOON claim group, Hoocheekoo Creek area. Report for United Keno Hill Mines Ltd. Assessment report #090929.

Deklerk, R. and Traynor, S. (compilers), 2004. “Yukon Minfile 2004 – a database of mineral occurrences”, Yukon Geological Survey (website and CD-ROM).

Doherty, A., 2008. Yukon Mining Incentive Program report on the Peanut claims: Focused regional program Carmacks area, Yukon. Report for BCGold Corp. YMIP 07-033

Fisher, J, 1981: “United Keno Hill Mines Ltd., Hoocheekoo Creek area, Yukon”, Assessment report # 090729 on diamond drilling.

Gordey, S. P. and Makepeace, A.J., 2000. “Yukon Digital Geology”, Geological Survey of Canada, Open File D3826, and Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, Open File 1999-1(D).

Hood, S. et al., 2009. High-grade hydrothermal copper-gold mineralization in foliated granitoids at the Minto mine, central Yukon. *In*: Yukon Exploration and Geology 2008, L.H. Weston et al. (eds), Yukon Geological Survey, p. 137-146.

Huss, C. et al., 2012. Carmacks Copper Project, NI 43-101 technical report, feasibility Study, Vol. 1, Yukon Territory, Canada. Report for Copper North. SEDAR.

James, D., 2014. Assessment report on the STU property. Report for Bill Harris. Assessment report #096582

James, D., 2016. Assessment report on the STU property. Report for Bill Harris. Assessment report #096843.

James, D. and Davidson, G.S., 2018. National Instrument 43-101 Technical Report on the Stu Copper Property, near Carmacks, Yukon, Canada. Report for Granite Creek Copper. SEDAR.

James, D., 2019. Soil geochemical sampling assessment report on the Stu Copper property. Report for Granite Creek Copper. Assessment report number not assigned.

Joy, R.J., 1981. 1981 geological and geochemical report on the MOON claim group, Hoocheekoo Creek area, Whitehorse mining district. Report for United Keno Hill Mines Ltd. Assessment report #090930.

Kovacs et al., 2017. New geological insights into the Carmacks Copper Cu-Au-Ag deposit, central Yukon. *In*: Yukon Exploration and Geology 2016, K.E. MacFarlane and L.H. Weston (eds.), Yukon Geological Survey, p.117-140.

Kreft, B., 2002. Report on phase #1 alkalic porphyry copper gold recce project. YMIP Focused Regional Module 2002-9.

Leblanc, E. and Joy, R.J., 1980. 1980 geological and geochemical report on the MOON claim group, Hoocheekoo Creek area, Whitehorse mining district. Report for United Keno Hill Mines Limited. Assessment report #090771.

Mitchell, D.C., 1971. Report on geochemical soil and magnetometer surveys. Report for Hudson's Bay Oil and Gas Company Limited. Assessment report #061111.

McNaughton, K. 1994. Carmacks Copper Project 1994 Exploration Program. Report for Western Copper Holdings Limited. YMIP 94-029.

Mooney, J., 2014. Heritage resource overview assessment STU property. Report for Bill Harris by Ecofor consulting.

Mortensen, J. K. and Tafti, R., 2002. "Nature and origin of copper-gold mineralization at the Minto and Williams Creek deposits, west-central Yukon: Preliminary investigations", in Yukon Exploration and Geology 2002, D. S. Emond and L. L. Lewis (eds.), Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, p. 165-174.

Nelson et al., 2013. The Cordillera of British Columbia, Yukon and Alaska: Tectonics and Metallogeny, *in Society of Economic Geologists Special Publication 17*, pp. 53-109.

Newman. D. and Joy, R.J., 1980. 1980 geological and geochemical report on the NOON claim group, Hoocheekoo Creek area, Whitehorse mining district. Report for United Keno Hill Mines Limited. Assessment report #090775.

Newton, G., 2008. 2008 Geochemical report on the BREAD property. Report for BCGold Corporation. Assessment report #095208.

Newton, G., 2008. 2008 geochemical report on the BUTTER property. Report for BCGold Corporation. Assessment report #095209.

Olsen, D.P., 1974. Geophysical and geochemical report on the Bay claims, Hoocheekoo Creek area, Yukon Territory. Report for Hudson's Bay Oil and Gas Company Limited. Assessment report #061099.

Ouellette, D., 1989. "Report on the 1989 percussion drilling of the STU property". Report for United Keno Hill Mines Limited. Assessment report # 0902854.

Pautler, J., 2007. Geological, geochemical and geophysical assessment report on the STU Property. Report for Bill Harris. Assessment report #094737.

Pautler, J. 2009. Geological, geochemical, petrographic and compilation assessment report on the STU Property. Report for Bill Harris. Assessment report # 095195.

Pautler, J., 2011. Geological and geochemical assessment report on the STU property. Report for Bill Harris. Assessment report #095273.

Pautler, J., 2012. "Petrographic and Geophysical assessment report on the STU property in the Carmacks Copper-Gold Belt, Yukon". Report for Northern Tiger Resources Inc. Assessment report #096165.

Pautler, J., 2015. Geological, geochemical, trenching and archaeological report on the STU project in the Carmacks Copper-Gold Belt, Yukon. Report for Bill Harris. YMEP Project no. 14-081.

Pearson, W. N. and Clark, A. H., 1979. “The Minto copper deposit, Yukon Territory: A metamorphosed orebody in the Yukon Crystalline Terrane”. Economic Geology, vol. 74, p.1577-1599.

Pollries and Ouellette, 2013. Assessment report on the 2012 Geophysical Survey for the DEL Claims. Report for Northern Tiger Resources Inc. Assessment report #096327.

Robertson, R., 2006. 2005 assessment report on the STU Property. Report for Midnight Mines Ltd. Assessment report #094592.

Ryan, S., 2007a. Geochemical report JAM 1-24. Assessment report #094843.

Ryan, S., 2007b. Geochemical report BREAD 1-24. Assessment report #094842.

Sidhu, Gary., 2009. Technical report for Copper claims: target evaluation program, Carmacks area, Yukon. Report for BCGold Corp. YEIP report 2008-036.

Smith, C.A.S., Meikle, J.C., and Roots, C.F. (editors), 2004. Ecoregions of the Yukon Territory: Biophysical properties of Yukon landscapes; Agriculture and Agri-Food Canada, PARC Technical Bulletin No. 04-01, Summerland, British Columbia, 313 p.

Smith, Paul A., 1979. Report on the induced polarization & resistivity survey on the STU & HI claim groups. Report for United Keno Hill Mines Limited. Assessment report #090428.

Schulze, C., 2008. Geological and Geochemical Surveying on the DEL claim block. Assessment report #095064.

Shives, R.B.K, et al., 2002. Airborne multisensor geophysical survey, Minto, Yukon. GSC Open File 4333, EGSD 2002-20D.

SRK Consulting, 2008. Technical Report Minto Mine, Yukon. Report for Minto Explorations Ltd. SEDAR.

Smith, P.A., 1979. Report on the induced polarization & resistivity survey on the STU & HI claim groups. Report for United Keno hill Mines Limited. Assessment report #090428.

Tafti, R. and Mortensen, J. K. 2003. “Early Jurassic porphyry (?) copper (-gold) deposits at Minto and Williams Creek, Carmacks Copper Belt, western Yukon”, in Yukon Exploration and Geology 2003, Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, p. 289-303.

Tempelman-Kluit, D. J., 1981, Description of the Stu property, Yukon Geology and Exploration 1979-80: Whitehorse, Yukon, Geology Section, Department of Indian and Northern Affairs, p. 262-263.

Tempelman-Kluit, D. J., 1984. “Geology of the Laberge and Carmacks map sheets”, Geological Survey of Canada Open File 1101.

Thompson, A.J.B and Thompson, J.F.H (eds), 1996. *Atlas of Alteration: A Field and petrographic guide to hydrothermal alteration minerals*. Geological Association of Canada, Mineral Deposits Division.

Watson, K.W. and Joy, R.J., 1977. “1977 Geological, geochemical and geophysical report on the STU claim group, Hoocheekoo Creek area, Whitehorse Mining District”, Assessment report # 090248.

Yukon Energy 2016 Resource Plan, 2016. Yukon Energy. Available at http://resourceplan.yukonenergy.ca/

Websites

Capstone Mining Corp. www.capstonemining.com

Copper North Mining Corp. www.coppernorthmining.com

APPENDIX A: Date, Signature and Certificate of Author

I, Deborah Ann Rachel James of 11-3194 Gibbins Road, Duncan, British Columbia, do hereby certify the following:

- I am a Professional Geoscientist in good standing with the Association of Professional Engineers and Geoscientists of B.C.
- I graduated from the University of British Columbia with a B.Sc. degree in Geological Sciences in 1988
- I have been employed continuously in the mineral exploration and mining industry since 2006 and have been practising my profession as a geologist continuously since 2006.
- I have worked in the Yukon Territory in 1988-1989 and from 2006-present. During that time I have worked in the field on the Mt. Skukum Au-Ag vein deposit near Carcross, YT, the Nucleus and Revenue Cu-Au Porphyry deposits at the Freegold Mountain Property in the Dawson Range, Ni-Cu-PGE occurrences in the Kluane Ranges in southwest YT, Ag-Pb veins in the Keno Hill District, and the Stu Copper Property. I have participated in technical fieldtrips at the Minto mine and the Carmacks Copper Property led by company geologists.
- I last visited the Stu Property site between August 5 and 15, 2020 to conduct the work described herein;
- I have worked on the Stu Copper Property from September 15-17, 2013 and July 13-31, 2015 for Bill Harris and wrote a Technical Report for Granite Creek Copper (November 15, 2018).

Deborah James

APPENDIX B: Sample Descriptions and Analysis

See digital files

APPENDIX C: Statement of Expenditures

See YMEP expense claim and digital invoices

APPENDIX D: Geophysical Field Report

See digital files