Technical Report
on the
Mantle property
Located near Kitimat, British Columbia, Canada

Property centre is near:

54° 08' 10" N 128° 11' 54" W

on

N.T.S. map 103 I/01

Report For:

High Point Exploration Inc.
1080 - 789 West Pender Street
Vancouver, BC
V6C 1H2

Report by:

Sean P. Butler, P.Geo.

Effective Date: September 17, 2019

CERTIFICATE OF AUTHOR - SEAN BUTLER

I Sean P. Butler, P.Geo., do hereby certify that:

1. I am an Independent Geological Consultant with a residence at 3252 Ganymede Dr, Burnaby, BC, Canada, V3J 1A4;
2. I am a graduate with a Bachelor of Science degree in Geology from the University of British Columbia in 1982;
3. My professional affiliation is member of the Association of Professional Engineers and Geoscientists of British Columbia, Canada, Member # 19,233, Professional Geoscientist;
4. I visited the Mantle property on October 3, 2018;
5. I have no interest in High Point Exploration Inc., Zenith Exploration Inc. or the Mantle property;
6. I have been active in the exploration and mining industry for approximately 35 years since graduation from university. I have worked extensively exploring for both base and precious metals from early stage programs up to advanced underground exploration and mining;
7. I have read the definition of "Qualified Person" as set out in National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be a "Qualified Person" with regard to the Mantle property;
8. I am responsible for all sections in the report titled "Technical Report on the Mantle Property" with effective date of September 17, 2019 (the "Technical Report");
9. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading;
10. I am independent of High Point Exploration Inc. applying all of the tests in Section 1.5 of NI 43-101;
11. I have read NI 43-101 and Form NI 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form;
12. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this **24th** day of **September, 2019**.

"Signed and Sealed"

Signature of Qualified Person
Sean P. Butler, P.Geo.

Cover Photo 1 Gash Creek, a tributary of Mantle Creek with a view of the hydrothermal system exposed as seen from the helicopter

Gash Creek drains the main soil-molybdenum anomaly north of Mantle Creek

EXECUTIVE SUMMARY

Sean Butler, P.Geo., the author was contracted to write a Technical Report on the Mantle property south-south-east of Terrace, British Columbia, by High Point Exploration Inc. The report is to document the history of work on the Mantle property with recommendations for future work to support an Initial Public Offering (IPO) and a listing of securities on the Canadian Securities Exchange (CSE) for High Point Exploration Inc. The author is independent of High Point Exploration Inc., Zenith Exploration Inc., and the Mantle property.

On the morning of October 3, 2018, the author examined the Mantle property in the company of John Ostler, P.Geo., the original property vendor. Access was by an A-Star helicopter of Quantum Helicopters from the Northwest Regional Airport near Terrace. Geology and alteration were examined on the ground near Lamp Creek in the east central part of the property. Other locations near mineralized zones that were inaccessible for landing were overflown by the helicopter at low elevations for observation.

The Mantle property is located near the northern coast of British Columbia, on the west side of the Kitimat River valley, near Mantle, Lamp and Gossan Creeks. The property is about 30 kilometres east-north-east of the town of Kitimat, BC and it is located about 50 kilometres south-south-east of Terrace, BC.

The property centre is near latitude 54° 08' 10" N and longitude 128° 11' 54" W. Mantle is located on 1:50,000 Canadian N.T.S. map 103 I/01 entitled Mount Davies, British Columbia. It is also found on the 1:20,000 BC Trim topographic maps 103I019 and 103I020. The Mantle property covers part of the western slope of the upper Kitimat River valley.

The Mantle property consists of the MANTLE 1 to MANTLE 6 claims covering a total of 1,743 hectares. Expiry dates of the MANTLE 1 to 4 claims are in 2025 following the approval of the 2019 assessment work by the Province of British Columbia. The MANTLE 5 and 6 claims will require assessment work or payments in 2019 to maintain title.

There are no nearby parks, First Nations Reserves or private property. All the surrounding ground is crown land held in title by the Province of British Columbia. There are no adjoining mineral claims.

Pursuant to the Arrangement Agreement among Zenith Exploration Inc., High Point Exploration Inc. and Top Exploration Inc. dated May 28, 2019 the MANTLE 1 to 4 claims were transferred to High Point. High Point was a wholly owned subsidiary of Zenith at the time of the Arrangement. MANTLE 5 and 6 were transferred from Zenith to High Point pursuant to a separate agreement.

On September 17, 2019 the MANTLE 1 to 6 claims ownership was transferred on BC MTOnline from Zenith to High Point.

The only recorded royalties known by the author is the 1% NSR to John Ostler noted above.

Access to the property is presently best made by helicopter from the airport near Terrace, BC which is about 45 kilometres north-north-west.

The gravel road on the eastern side of the Kitimat River valley was open in October, 2018 for logging and could be used to stage a large exploration project with helicopter support. A large log landing was open downstream from the property and is potentially available to use for staging advanced programs. This road is connected to Highway 37 about 40 kilometres away from the area of the Mantle claims. The road leads eastward from B.C. Highway 37 with the Highway turnoff at a distance of 29 kilometres south of the junction of B.C. Highways 16 and 37 in Terrace.

The Terrace-Kitimat area has cold wet winters and cool, moderately dry summers. Winter snow falls in the property area by November and stays on the ground until April in open areas, and until July on shady northerly facing slopes at the higher elevations. Exploration can begin in April in lower elevations and extend into October. Mining could continue year-round with operational considerations for snow and ice removal.

The claims are roughly bounded to the east by Kitimat River. Adequate fresh water for a mining operation could be drawn from that and other local water courses. As well, the creeks have enough water for drill programs year-round. The tributary creek valleys are steep but room for a mill and tailings should be possible in one of the lower areas near the river. Both Terrace and Kitimat have the resources to support exploration and mining operations.

Elevations on the eastern part of the Mantle property range from 375 m on the Kitimat River floodplain at the eastern boundary of the MANTLE 2 claim to 1,660 m on the ridge in the centre western part of the MANTLE 5 claim. The north-western margin of the Mantle property is above tree line. Most of the property is covered with a dense, first-growth forest of cedar, spruce, fir, and hemlock. Terrain on most of the property area is quite rugged and post-glacial weathering has produced a steep V-shaped valley profile.

There is a significant work completed at the Mantle property predominantly in the mid-1960s by Southwest Potash (AMAX). This work included line cutting, soil geochemistry for copper and molybdenum, plane table mapping, detailed and reconnaissance geological mapping along with stream sediment and rock chip sampling.

In 1979 AMAX returned and completed more mapping, rock-chip and soil sampling for copper and molybdenum over two small grids. This worked confirmed the previous work noting that Gossan Creek had the most anomalous surface exposures.

In 1984 ABO Oil Corporation claimed the area now at the focus area of the Mantle property and work was conducted to confirm AMAX's 1966 work and to investigate the precious metal potential of the property area. In 1984 a total of 123 soil, silt, and rock-chip samples were taken in the lower parts of Gossan, Lamp, and Mantle creeks. In 1985 a further 145 soil samples along 6 contour lines in the area of the south-eastern extension of the Mantle Creek soil-molybdenum anomaly. Results confirmed those of the 1966 AMAX soil survey. In 1986 ABO Oil Corporation conducted a horizontal loop electromagnetic survey on the area of the present MANTLE 4 claim.

In 2015 and 2016, the present MANTLE 1 to 4 claims were located by John Ostler. In 2016, a field exploration program was conducted by John Ostler and an assistant. The work focused on the hydrothermal alteration related to copper and molybdenum mineralization around Gossan, Lamp, and Mantle creeks, and investigation of the provenance of the 1965-1966 AMAX molybdenum in soil anomalies near Gossan and Mantle creeks. Five pan concentrates were collected and analysed in 2016 from the creeks draining the west side of the valley including two in Mantle Creek and one each in South, Lamp and Gossan Creeks. A prospecting, geological mapping and site review was also completed in the areas of previous anomalous molybdenum soil values in various traverses. The work confirmed the alteration and mineralization outlined in the 1965 and 1966 work.

In 2018 the claims were acquired by Zenith Exploration Inc. who undertook an airborne magnetic and radiometric geophysical surveys consisting of 262 line-kilometres at a nominal height of 40 metres above the ground of airborne surveying in a systematic grid with tie-lines. The surveys extended beyond the claim boundaries. The surveys indicated a number of alteration related results and allowed further definition of the mineralizing system shape and suggested multiple phases of intrusion. The radiometric survey indicated that the hydrothermal alteration was larger than previous believed and the MANTLE 5 and 6 claims were subsequently staked to extend the property to the west.

No drilling has been completed to date on the Mantle property.

The target deposit type at Mantle is a calcalkaline porphyry copper or copper-molybdenum with possible associated gold and/or silver. This deposit type is described as stockworks of quartz veinlets, quartz veins, closely spaced fractures and breccias containing pyrite and chalcopyrite with lesser molybdenite, bornite and magnetite occur in large zones of economically bulk-mineable mineralization in or adjoining porphyritic intrusions and related breccia bodies. Disseminated sulphide minerals are present, generally in subordinate amounts. The mineralization is spatially, temporally and genetically associated with hydrothermal alteration of the host rock intrusions and wallrocks.

High Point Exploration Inc. has completed no mineral exploration on the Mantle property.

No metallurgical testing has been done or mineral resource estimates completed at Mantle.

Previous field exploration, local and regional geological mapping, the airborne magnetic and radiometric surveys, regional stream sediment results, and the author's visual confirmation on the ground and from the helicopter confirm a hydrothermal alteration system of significant areal extent in the Mantle property area.

The Mantle property has a history of detailed field work but the geochemical technologies used in the past had limited capability of few elements analysed and high base thresholds. There has also been a large amount of research and further definition of porphyry molybdenum deposits and greater understanding of the regional geology. These advances in general deposit knowledge, technology and access options will present a more detailed targeting opportunity.

The 2016 field work by Ostler has confirmed the information reported by Southwest Potash in the mid-1960s. Ostler, 2019 combined his field work with the airborne magnetic and radiometric survey to get a better idea of the general underlying hydrothermal system. The airborne surveys indicated that the hydrothermal system was more extensive than previously appreciated. More claims were staked to cover this larger extent. The next step is to add more detailed field work incorporating the present understanding of porphyry copper and molybdenum deposits.

The work to date, particularly that of the last four years (Ostler, 2016 and 2019), has confirmed large propylitic and phyllic alteration systems that need to be better defined. Previous work and regional geochemical surveys have confirmed that copper and other related porphyry deposit elements are present.

There is a long history of work on this property, particularly in the mid-1960s and mid-1980s, but very little is modern. Ostler, 2016 and 2019 used modern methodologies but his field work was very limited. The results of the airborne geophysical surveys provided enhanced definition of target areas.

The recommended first phase of exploration comprises geological mapping of the property along with a multi-element soil geochemical survey. This should be focused on the areas highlighted in Ostler, 2019 near both Gossan and Lamp Creeks and the lower slopes near Mantle and South Creeks. The soil sample analyses should use multi-element ICP-MS. This is estimated to cost about $150,000.

If Phase 1 is successful in confirming target areas, it is recommended that a Phase 2 program of Induced Polarization (IP) survey be conducted up the ravines of Gossan, Lamp and Mantle creeks and along the adjacent ridges to determine the major subsurface geological alteration and mineralogical trends. This technique responds well to the disseminated sulphide minerals that are a key target in porphyry mineral deposits. There should be about eight east-west lines spaced about 150 to 400 metres apart of about one-kilometre length each and one north-south line of about two-kilometres. Terrain will be one of the defining factors in line spacing and location.

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2 INTRODUCTION

2.1 Terms of Reference

Sean Butler, P.Geo., the author, was contracted, to write this Technical Report on the Mantle property, located south-south-east of Terrace, British Columbia (BC). This report documents the history of work on, and current state of the Mantle property with recommendations for future work. This report provides information supports an Initial Public Offering (IPO) and the listing of shares on the Canadian Securities Exchange (CSE) of High Point Exploration Inc.

The author is independent of High Point Exploration Inc. Zenith Exploration Inc. and the Mantle property.

2.2 Sources of Information

The major sources of information were found on the internet in British Columbia and Canada government files summarized in the Reference section. Further details were provided by the original property vendor John Ostler, P.Geo. These reports were written by industry and government professionals and are considered to be reliable and developed to the industry standards at the time of writing.

2.3 QP Personal Inspection

On the morning of October 3, 2018, the author visited the Mantle property. The author was accompanied by John Ostler, P.Geo., the original property vendor and a helicopter pilot (Photo 2).

Photo 2 Helicopter on overgrown logging road at 2016 camp site near Lamp Creek bridge on the Mantle property in October, 2018

Access was by an A-Star helicopter of Quantum Helicopters from the Northwest Regional Airport near Terrace. There was only one location found on the main part of the Mantle property suitable for landing the helicopter that was near the primary mineralized target areas. Part of the overgrown road had been cleared for the 2016 exploration program and remained accessible. The visit was to a hydrothermally altered outcrop of volcanic rock (of the Telkwa Formation within the Hazelton Group) that is an inlier or roof pendant in the Tertiary age granodiorite to the north and west and possibly bounded by Jurassic and/or Cretaceous aged quartz diorites.

During the visit there was a review of the mineralized quart monzonite and quartz-feldspar bodies in the Mantle and Gossan, soil-molybdenum anomalies near those creeks, and previously established mineralized areas and extent of the property during several low-level helicopter flight over the property. This included a feature visible from the air was Gash Creek, a tributary of Mantle Creek (Cover Photo 1). Gash Creek is in a large steep rock cleft that cuts through the centre of the Mantle hydrothermal system.

The QP Personal Inspection was conducted in early October to be complete prior to arrival the winter snow. The rock of the Mantle hydrothermal system could be observed both on the ground and from the helicopter and made movement on site safer for the professionals involved.

The recent airborne geophysical surveys were completed in December, 2018, after the author's site visit. Those surveys only involved systematic data collection at a low level above the property. They changed nothing on the ground so the author's October, 2018 Inspection is deemed to be current.

2.4 Abbreviations and Units of Measure

The author has used metric units of measurement, Canadian dollar funds and metric analytical reporting unless noted. The following is a list of abbreviations which may have been used in this report:

Table 1 Abbreviations

Abbreviation	Description		Abbreviation	Description
AA	atomic absorption		m	metre
Ag	silver		m^2	square metre
aka	also known as		m^3	cubic metre
AMSL	above mean sea level		Ma	million years ago
As	arsenic		mg	magnetite
Au	gold		mm	millimetre
AuEq	gold equivalent grade		mm^2	square millimetre
BC	British Columbia		mm^3	cubic millimetre
BCGS	British Columbia Geological Survey		mn	pyrolusite
CAD$	Canadian dollar		Mo	Molybdenum
cl	chlorite		Moz	million troy ounces
cm	centimetre		ms	sericite
cm^2	square centimetre		Mt	million tonnes
cm^3	cubic centimetre		m.y.	million years
cp	chalcopyrite		NAD	North American Datum
CSE	Canadian Securities Exchange		NI 43-101	National Instrument 43-101

Abbreviation	Description		Abbreviation	Description
Cu	copper		opt	ounces per short ton
cy	clay		oz	troy ounce (31.1035 grams)
°C	degree Celsius		Pb	lead
°F	degree Fahrenheit		pf	plagioclase
DDH	diamond drill hole		ppb	parts per billion
ep	epidote		ppm	parts per million
ft	feet		py	pyrite
ft^2	square feet		QA	Quality Assurance
ft^3	cubic feet		QC	Quality Control
g	gram		qz	quartz
gl	galena		RC	reverse circulation drilling
go	goethite		RQD	rock quality description
GPS	Global Positioning System		Sb	antimony
g/t	grams per tonne		SEDAR	System for Electronic Document Analysis and Retrieval
ha	hectare		SG	specific gravity
hg	mercury		sp	sphalerite
hm	hematite		st	short ton (2,000 pounds)
ICP	induced coupled plasma		t	tonne (1,000 kg or 2,204.6 lbs)
IPO	Initial Public Offering		to	tourmaline
kf	potassic feldspar		um	micron
kg	kilogram		US$	United States dollar
km	kilometre		Zn	zinc
km^2	square kilometre			
l	litre			

3 RELIANCE ON OTHER EXPERTS

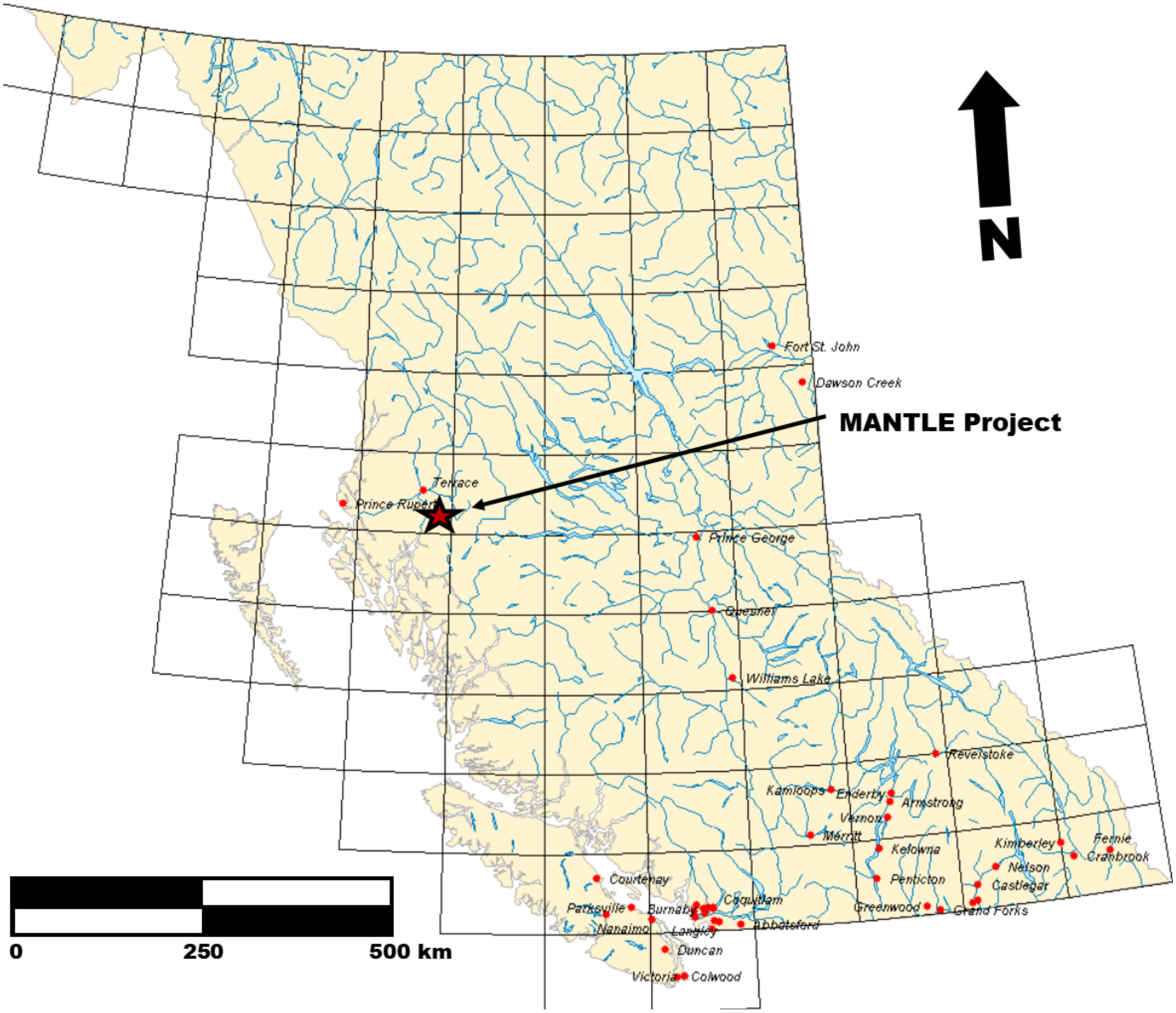
The author is not an expert on mineral title issues and has depended on the BC Government mineral title website at https://www.mtonline.gov.bc.ca/mtov/home.do.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The Mantle property is located near the northern coast of British Columbia, on the west side of the Kitimat River valley, near Mantle, Lamp and Gossan Creeks as noted on Figure 2 and Figure 3. The property is about 30 kilometres east-north-east of the town of Kitimat, BC and about 50 kilometres south-south-east of Terrace, BC. The property is located at the eastern margin of Kitimat Range of the Coast Mountains in north-western BC.

The property centre is near latitude 54° 08' 10" N and longitude 128° 11' 54" W. It is located on 1:50,000 Canadian N.T.S. map 103 I /01 titled Mount Davies, British Columbia. It is also found on the 1:20,000 BC Trim topographic maps 103I019 and 103I020. The Mantle property covers part of the western slope of the upper Kitimat River valley.



Source: BC Government MapPlace

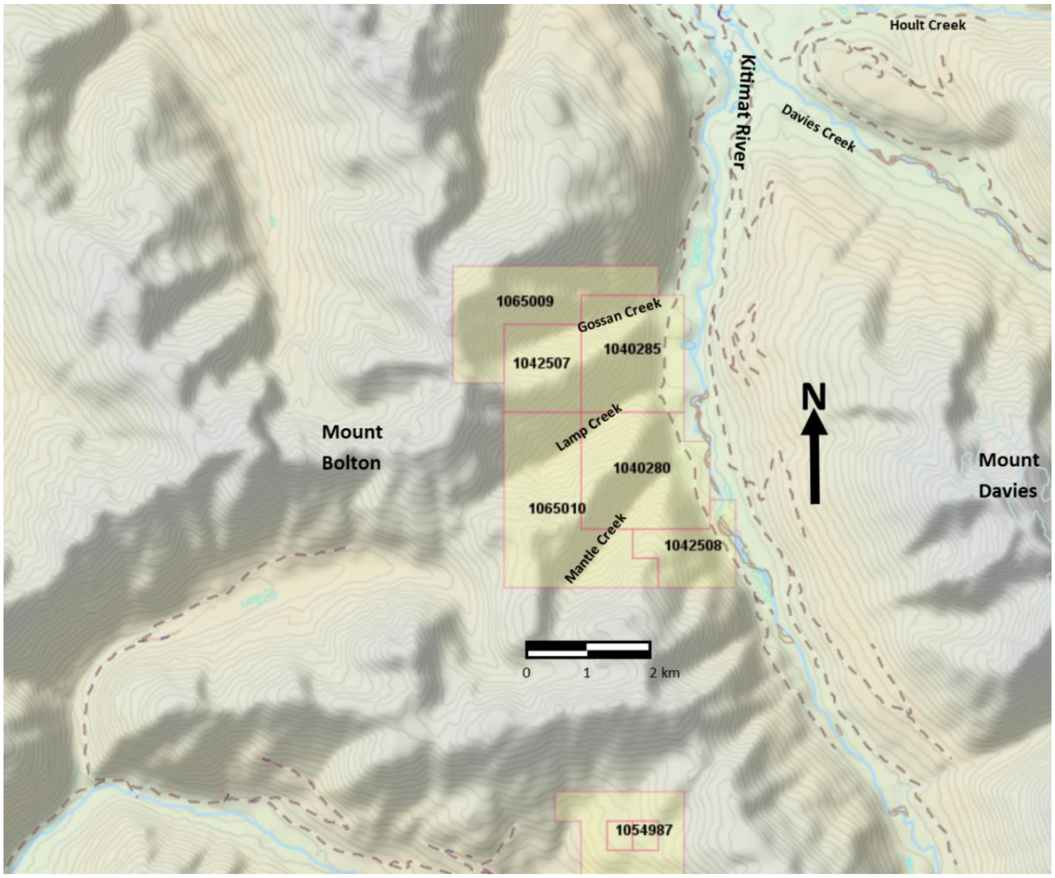
Figure 1 Location of the Mantle property

4.2 Property Description

The Mantle property consists of the MANTLE 1 to MANTLE 6 claims covering a total of 1,743 hectares. Table 2 is based on a search of MTOnline, the Mineral Titles website, on the BC Government website on September 17, 2019.

The first two claims were map-staked in December, 2015 by John Oslter. The MANTLE 3 and 4 were added in March, 2016. The MANTLE 5 and 6 were added by Zenith Exploration Inc. during the December, 2018 airborne surveys based on preliminary data that indicated the potassic alteration zone extended beyond the then located MANTLE 1 to 4 claim boundaries.

There are no nearby parks, First Nations Reserves or private property. All the surrounding ground is Crown Land held in title by the Province of British Columbia.



Source: Basemap from BC MapPlace

Figure 2 Claim Map of Mantle

Table 2 Mineral Title Summary

Claim Name	Record Number	Area (hectares)	Record Date	Expiry Date	Registered Owner
MANTLE 1	1040280	360.05	2015/DEC/01	2025/AUG/15	High Point Exploration Inc.
MANTLE 2	1040285	303.08	2015/DEC/01	2025/AUG/15	
MANTLE 3	1042507	170.49	2016/MAR/02	2025/AUG/15	
MANTLE 4	1042508	151.64	2016/MAR/02	2025/AUG/15	
MANTLE 5	1065009	321.97	2018/DEC/09	2019/DEC/09	
MANTLE 6	1065010	435.91	2018/DEC/09	2019/DEC/09	
Total Area		**1,743.13**	**hectares**		

All claim staking in British Columbia is performed using the "cell system" on BC Mineral Titles Online (https://www.mtonline.gov.bc.ca/mtov/home.do) and is a "map-staking" process. Although the boundaries of the Mantle property have not been surveyed and their exact positions have not been defined on the ground the locations are defined precisely in the provincial mineral tenure grid. Consequently, there is no legal uncertainty regarding the location and the area covered by the Mantle claims as well as no gaps among adjacent claims.

The 2018 airborne surveys have been applied for assessment credit using the Ostler, 2019 report. The expiry dates are reflected in Table 2.

4.3 Agreements

John Ostler (original property vendor) has located the Mantle claims with the first two in 2016 and continuing to add to them as summarized above. On November 15, 2018 an agreement between John Ostler and Zenith Exploration Inc. (Zenith) outlines the terms of transfer of 100% of the MANTLE 1 to 4 claims as:

- Pay to vendor $1,000.00 at time of signing
- Pay to Cassiar East Yukon Expediting Ltd. (a company controlled by John Ostler) a retainer fee of $11,000
- Issue 200,000 shares of Zenith Exploration
- Provide a 1% Net Smelter Return Royalty to John Ostler

MANTLE 1 to 4 were subsequently transferred in January, 2019 to Zenith by John Ostler as per the agreement. The MANTLE 5 and 6 were located in the name of Zenith in December, 2018 on MTOnline after that agreement was completed. The Mantle 5 and 6 were added under the area of interest clause of the November, 2018 agreement. On January 15, 2019 the title was transferred from John Ostler to Zenith Exploration on BC MTOnline for MANTLE 1 to 4.

Pursuant to the Arrangement Agreement among Zenith Exploration Inc., High Point Exploration Inc. and Top Exploration Inc. dated May 28, 2019 the MANTLE 1 to 4 claims were transferred to High Point. High Point was a wholly owned subsidiary of Zenith at the time of the Arrangement. MANTLE 5 and 6 were transferred from Zenith to High Point pursuant to a separate agreement.

On September 17, 2019 the MANTLE 1 to 6 claims ownership was transferred on BC MTOnline from Zenith to High Point.

The only recorded royalties known by the author is the 1% NSR to John Ostler noted above.

4.4 Mineral Title Maintenance Requirements

For the MANTLE 1 to 4 no further work is required until 2025 after the airborne work completed in 2019. Fieldwork or payments will be required in 2019 for the MANTLE 5 and 6 claims to extend the title beyond December 9, 2019.

The annual requirements for maintenance of mineral title is based on the following requirements reflected below.

- $5.00 per hectare for anniversary years 1 and 2;
- $10.00 per hectare for anniversary years 3 and 4;
- $15.00 per hectare for anniversary years 5 and 6; and
- $20.00 per hectare for subsequent anniversary years

Table 3 Cost to Maintain the Mantle Claims by year

Year	Property Area Requiring Annual Work (Ha)	Work Required at $5/Ha/Yr	Work Required at $10/Ha/Yr	Work Required at $15/Ha/Yr	Work Required at $20/Ha/Yr	Total Annual Work Cost Required $
2019 + 2020	757.88	$ 3,789.39	$ -	$ -		**$ 7,578.77**
2021 + 2022	757.88		$ 7,578.77	$ -		**$ 15,157.55**
2023 + 2024	757.88	$ -	$ -	$ 11,368.16	$ -	**$ 22,736.32**
2025 and subsequent years	1,743.13	$ -	$ -	$ -	$ 34,862.63	**$ 34,862.63**
Work Due by December 9 for MANTLE 5 and 6						

Any work completed in excess of the annual requirements as shown in Table 3 can be applied to future years assessment values at the rates as reflected in this table. The Payment Instead of Exploration and Development work (PIED) rate has been set by government statute at double the value of the corresponding assessment work requirement as an alternative title maintenance option. This is a direct payment to the Provincial Government for claim title maintenance. An Assessment Report detailing the work results is required to confirm any work done.

The value of the 2018 airborne geophysical surveys have been reflected in Table 3.

There are provisions for optionally decreasing the size of the claims in the future as highly-prospective and barren zones are defined and assessment maintenance costs will decrease proportionally with these provisions.

The First Nations with Statements of Intent to the area underlying the Mantle claims include the following:

- Haisla First Nation
- Tsimshian First Nations

The provincial regulatory programs will determine to what extent consultation is required with each of the local First Nations before an advanced exploration project is permitted.

Permits for work on the claims depend on the level of surface land disturbance. If no disturbance such as prospecting, mapping, airborne geophysics and soil surveys no permit is required. Further work requires a Notice of Work application and approval including First Nations' Consultation. Disturbances generally require a reclamation bond be posted by the exploration entity before work begins.

4.5 Environmental Liabilities

The author is not aware of any environmental liabilities on the Mantle property.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

Access to the property is presently best made by helicopter from the airport near Terrace, BC, a flight distance of about 45 kilometres. See Figure 3.

The gravel road on the eastern side of the Kitimat River valley was open in October, 2018 for logging and could be used to stage equipment and people for a large exploration project with helicopter support. A large log landing was open downstream from the property and is potentially available to use for staging advanced programs. This road is connected to Highway 37 about 40 kilometres away from the property area. The road leads eastward from B.C. Highway 37 with the highway turnoff at a distance of 29 kilometres south of the junction of B.C. Highways 16 and 37 in Terrace.

There is an overgrown logging road on the west side of Kitimat River at the base of the slope on the Mantle property. It diverges from the main Kitimat River road, mentioned above, near eight kilometres from the highway and crosses the river. The major creek crossings on the west side road continue to have the steel and concrete bridges in place including the crossings of Gossan, Lamp, and Mantle creeks in the eastern part of the property. The roadbed is generally in good condition but renovation of the road would require a substantial amount of work. About 25 kilometres of overgrown road with the culverts and minor bridges pulled and would require rebuilding. Alternate access might be to bridge Kitimat River from the road across the valley from the property.

5.2 Climate

The Terrace-Kitimat area has cold wet winters and cool, moderately dry summers. Winter snow falls in the property area by November and stays on the ground until April in open areas, and until July on shady northerly facing slopes at the higher elevations. The year-round weather is summarized in Table 4.

Exploration can begin in April in lower elevations and extend into October. Mining could continue year-round with operational considerations for snow and ice removal.

Table 4 Climate averages for Terrace, BC airport 45 kilometres from the Mantle property

Terrace, BC												
1981 to 2010 Canadian Climate Normals station data												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Daily Average (°C)	-3.0	-0.9	2.4	6.3	10.6	14.2	16.5	16.3	12.1	6.4	0.7	-2.6
Standard Deviation	3.1	2.3	1.7	1.3	1.7	1.5	1.4	1.2	1.3	1.1	2.3	2.8
Daily Maximum (°C)	-1.1	1.7	5.8	10.8	15.7	19.1	21.4	21.1	16.0	9.0	2.6	-0.8
Daily Minimum (°C)	-5.0	-3.4	-1.1	1.7	5.5	9.2	11.6	11.5	8.2	3.7	-1.1	-4.5
Extreme Maximum (°C)	9.4	12.7	16.9	26.0	34.6	36.5	37.3	36.2	32.2	21.4	13.4	11.3
Extreme Minimum (°C)	-25.0	-25.0	-19.4	-8.3	-2.2	0.6	3.3	2.8	-1.4	-13.5	-25.3	-26.7
Rainfall (mm)	91.7	61.8	58.8	64.7	55.7	50.8	52.8	61.2	111.5	185.2	132.2	99.0
Snowfall (cm)	88.4	51.9	34.3	8.5	0.4	0.0	0.0	0.0	0.0	4.8	56.0	87.1
Precipitation (mm)	173.5	110.6	92.3	73.7	56.4	50.8	52.8	61.2	111.5	190.3	187.1	180.9
Average Snow Depth (cm)	17.0	14.0	5.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	14.0
Median Snow Depth (cm)	15.0	13.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	12.0
Snow Depth at Month-end (cm)	16.0	9.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.0	17.0
Extreme Daily Rainfall (mm)	115.0	79.0	42.7	43.4	39.6	35.4	39.4	71.8	106.6	114.8	93.0	111.4

5.3 Local Resources

The claims are roughly bounded to the east by Kitimat River. Adequate fresh water for a mining operation could be drawn from that and other local water courses. The creeks have enough water for drill programs year-round. The tributary creek valleys are steep but room for a mill and tailings should be possible in one of the lower areas near the river.

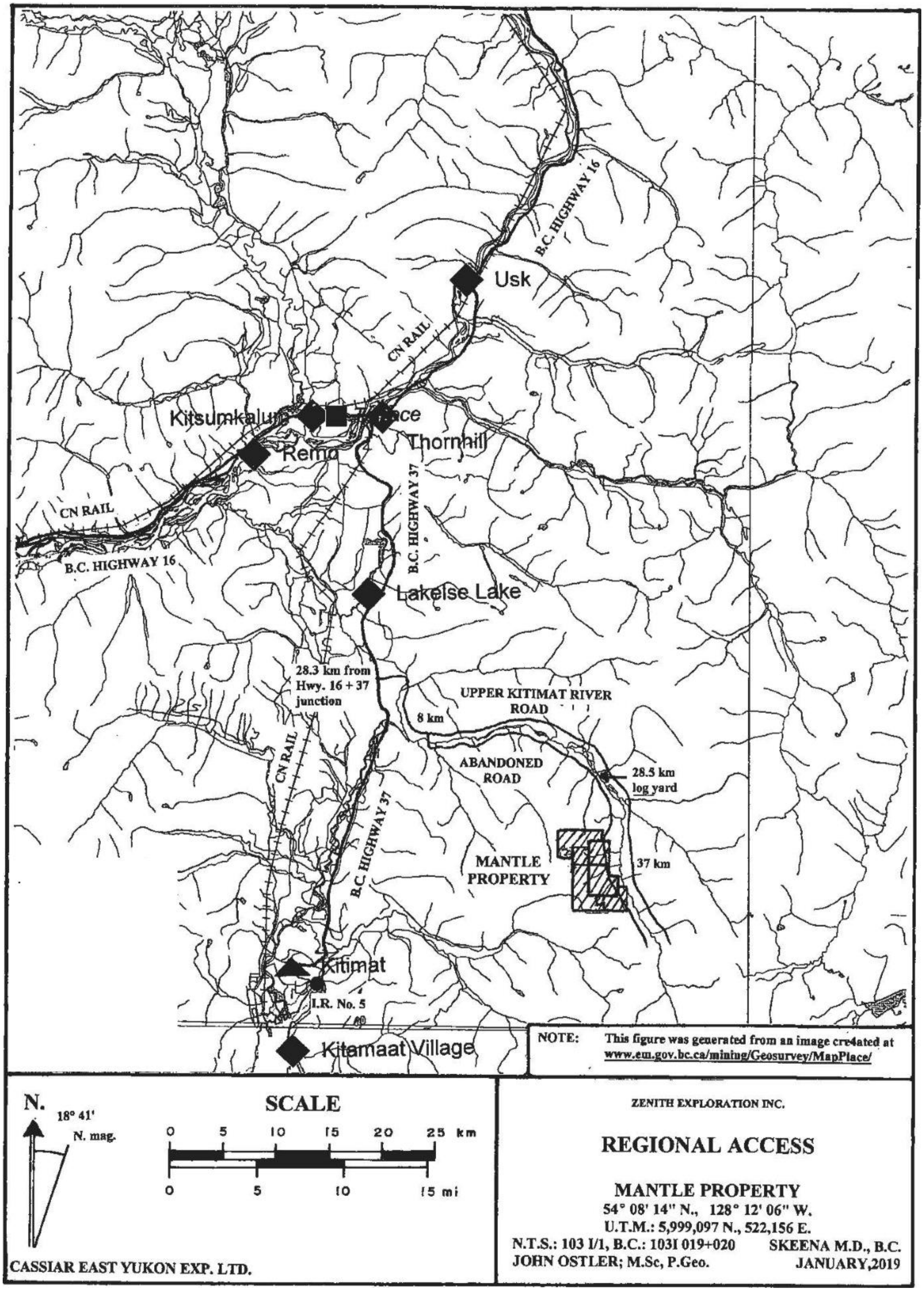
Both Terrace and Kitimat have the resources to support exploration and mining operations. Terrace is presently a regional mineral exploration resource centre, supporting programs generally to the north in the Golden Triangle near Stewart and farther north and would therefore be the best source of staff and material. Exploration access will be by helicopter although much of the supplies could be trucked into the Kitimat River valley nearby for short distance transfer to the site.

5.4 Infrastructure

There is no infrastructure on the Mantle property, although a gravel road up the east side of Kitimat River, across the river from the project, has been upgraded in part and improved for about the first 20 kilometres from the highway.

There is daily scheduled air service to the airport near Terrace by multiple airlines. There are all the resources to support a mining operation between Kitimat and Terrace. In early October, 2018 just prior to the current QP Personal Inspection, Kitimat and Terrace were preparing to expand local services and population with the announcement of the start of construction of a Liquid Natural Gas (LNG) compression and shipment plant in Kitimat.

There is a 287-kilovolt grid powerline adjacent to Highway 37 where the Kitimat River valley diverges from the valley between Terrace and Kitimat about 40 kilometres from the property. A powerline could be constructed from the existing grid powerline to the property. An alternative is to generate electricity locally by run of river systems. A natural gas pipeline is being developed to supply the LNG Canada plant now under construction in Kitimat. It is planned to be crossing the Kitimat River valley upstream from the property and could be a possible source of natural gas.



Source: Ostler, 2019

Figure 3 Regional Access and major supply Centres

5.5 Physiography

Elevations on the eastern part of the Mantle property range from 375 m on the Kitimat River floodplain at the eastern boundary of the MANTLE 2 (1040285) claim to 1,660 m on the ridge in the centre western part of the MANTLE 5 (1065009) claim.

The north-western margin of the Mantle property is above tree line. Most of the property is covered with a dense, first-growth forest of cedar, spruce, fir, and hemlock. Much of the forest on lower slopes near Kitimat River has been clear-cut recently. Although there is sufficient timber suitable for underground mining on the property, the exploration target is a porphyry molybdenum and copper deposit that would likely be mined from an open pit.

Terrain on most of the property area is quite rugged and post-glacial weathering has produced steep V-shaped valley profiles. The valley profile of Mantle Creek is developing so rapidly that the creek floor is covered with bare rock that is flushed clean each year during the winter rains. Gash Creek (see Cover Photo 1) has cleared of most of the overburden due to the rapid erosion.

6 HISTORY

Chronology of Ownership and Exploration of Claims in the Mantle property area as sourced from Ostler, 2016 and 2019.

1965 A large gossan was discovered during a low-level reconnaissance helicopter flight on the cliffs south of Gossan Creek by John Schindler, a geologist working for Southwest Potash Corporation. The subsequent 1965 Southwest Potash (AMAX) exploration program was described by Gambardella and Richardson, 1967 as follows:

> "Staking ... began in June, 1965. Additional claims were staked and some of the earlier claims were re-staked in August and September.
>
> Beginning in June, preliminary prospecting was done in the more remote areas of the property and along the three main creeks named Gossan, Lamp, and Mantle. Geological assessment of the property began in September when S.J. Carryer and R.H. McMillan mapped Mantle and Gossan creeks and the claim location lines in the central area of the property. Some ... stream ... and soil sampling were done concurrently with geological mapping.
>
> An induced polarization survey ... was done by McPhar Geophysics (appendix in Bell, 1965) along location lines and accessible sections of the creeks (Figure 4). (A frequency-domain unit was used. Station intervals were 91 to 183m (300 to 600 ft) with an 'a' spacing of n=1 to 3.) The survey totalled 3.5 line miles (5.64 line kilometres). No anomalies were found indicating that there is ... (little) ... pyrite associated with the molybdenite mineralization (Bell, 1965).
>
> ... Soil samples were collected at 300 foot (91 m) intervals along the location lines and the I.P. survey lines. Water and silt samples were collected in the drainage systems of Gossan, Lamp, and Mantle creeks and from several creeks flowing into the east side of Kitimat River. The stream sediment and water sampling confirmed the wide distribution of molybdenum mineralization, but sufficient work to

> limit the areas of interest was not completed. The sample density was insufficient to outline specific anomalous areas.
>
> The combination of molybdenum-bearing float of altered quartz-veined acidic rock, scattered positive soil sampling results, and the highly anomalous molybdenum-bearing waters flowing into Gossan and Mantle creeks was sufficiently encouraging to justify an extensive program ... in 1966. "

1966 AMAX's (Southwest Potash's) Kitimat River property changed shape and size during the 1965-1966 exploration program. By August, 1966 the property was comprised of 131 457 m 2-post claims (Gambardella and Richardson, 1967). Ostler, 2016 estimated that the property covered about 2,738 hectares and included all of the current MANTLE 1 to 4 property area.

The 1966 AMAX exploration program was described by Gambardella and Richardson, 1967 as follows:

> "The objectives of the 1966 program were (1) to establish the extent and grade of molybdenite mineralization, (ii) to supplement and refine the geological data obtained during the 1965 program, (iii) to prospect for other areas of molybdenite mineralization, and (iv) to outline possible drill targets.
>
> The work consisted of line cutting, plane table mapping, geological mapping, and rock chip sampling. (The crew comprised from 7 to 10 men). Field work was started on May 27 and ended on October 8th ...
>
> ... Plane table mapping was done along the base line between the mouths of Gossan and Mantle creeks and was extended up the above creeks to the areas of molybdenite mineralization. The plane table stations served as primary control for the geological mapping and for the rock chip sampling along the creek valleys. Where plane table mapping was not possible, control stations were established along Mantle and Gossan creeks by the tape and compass method.
>
> In the heavily timbered hillsides between the creeks, accurate compass and chain lines were established at 400 foot (121.92 m), and pickets were placed at intervals of 200 horizontal feet (60.96 m) along each line. The slopes covered by the grid average 45° and some sections are between 55° and 60°. Establishing these lines, was therefore, labourious and costly, but (I) the presence of highly anomalous Mo values in the water of springs along the base of the slope and (ii) the inaccuracy introduced by the simple compass and pace method along the very steep slopes justified the costs incurred in establishing the grid. A total of 27 line miles (43.47 line km) was completed. …
>
> Geological mapping was carried out in both Mantle and Gossan creeks on a scale of 1" = 100' (1:1,200). The area between the creeks was mapped at a scale of 1" = 200' (1:2,400) using the grid lines as control. The rest of the property was mapped in a reconnaissance fashion with the aid of a 1" = 500' (1:6,000-scale) contour map, aerial photos, and altimeter (Figure 5). In areas of no rock exposures, the underlying rock types were mapped by examining the rock rubble in geochemical sample holes.
>
> Geochemical samples were collected along the grid lines at 200' (60.96-m) intervals. The area tested in this fashion is approximately two- and one-half square miles (6.48 km2). Reconnaissance

geochemical sampling was done in the remainder of the property and in areas adjacent to the claim group. (Figure 4)"

Note, the soil samples in 1966 were analysed in camp using the stannous chloride - thiocyanate method (described in detail in the appendix to Gambardella and Richardson, 1966).

The rock-chip sampling program that was commenced in 1965 was expanded in 1966. The most prospective areas on Gossan and Mantle creeks were sampled. That program was described in Gambardella and Richardson, 1967 follows:

"Surface sampling in the form of continuous chip samples was conducted in Mantle and Gossan creeks. A total of 119 samples (1088 linear feet) (or 332 m) were collected. All samples were assayed for total Mo, and some of the samples were assayed for Cu and MoS_2 ...

Areas of visible mineralization and/or deep weathering, were drilled to a depth of 2 to 4 feet (0.6 to 1.2 m) ... and blasted open ... samples were collected on the fresh surfaces. The weighted average of all samples in Mantle Creek is 0.025% MoS_2 (0.017% Mo) and 0.026% Cu. (That) ... from the mineralized zone in Gossan Creek is 0.019% MoS_2 (0.010% Mo) and 0.029% Cu ...

Assay results of several samples collected from the same site before and after blasting were essentially the same, indicating that mechanical or chemical leaching of MoS_2 and Cu is negligible. With regard to the low grade of assays obtained, it must be pointed out that large portions of the mineralized areas, especially in Gossan Creek could not be sampled because of the rugged topography."

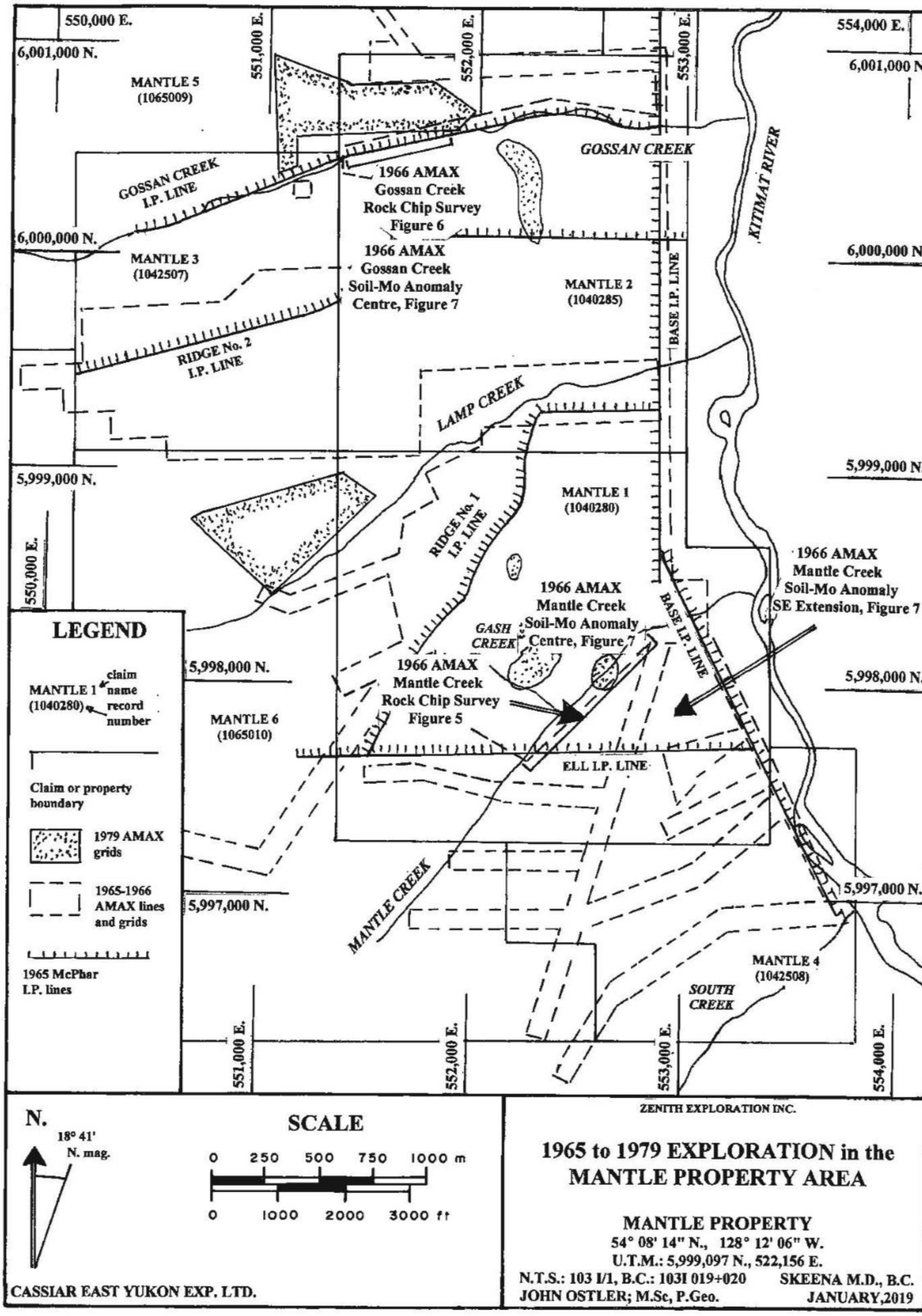
The 1965-1966 Southwest Potash (AMAX) geochemical surveys were described in Gambardella and Richardson, 1967 as follows:

"A total of 1005 geochemical soil, silt, water, and rock chip samples were collected on the property ...

Two anomalous areas were outlined (Figure 6) ... One occurs on the ridge between Gossan and Lamp creeks. It extends over an area of 7,000 by 2,000 feet (2,130X 610 m). Mo values range from 0 to 500 ppm and Cu from 0 to 120 ppm. The second anomaly occurs on the south facing slope of Mantle Creek and extends southward across the creek, for a distance of 1500' (457.2 m). The anomaly is roughly elliptical in shape and 4,500 by 4,000 feet (1,371.6 X1,219.2 m) in area. Mo values range from 6 to 500 ppm and Cu from 0 to 140 ppm.

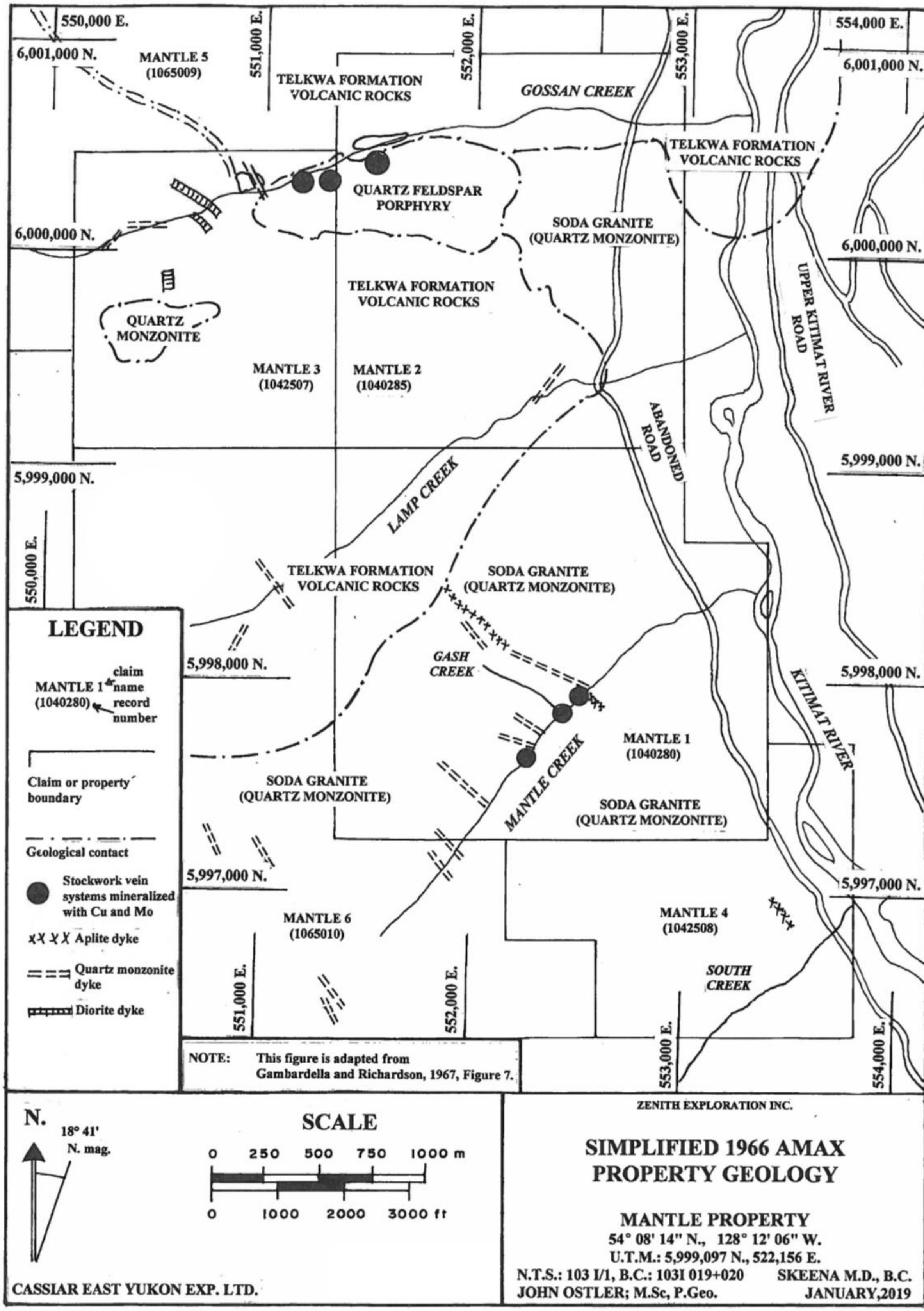
Silt values for the entire property range from 0 to 160 ppm Mo and from 0 to 320 ppm Cu. Water values range from 0 to 700 ppm Mo. THM (total heavy mineral) values in soils range from 0 to 25 ppm."

The average copper-molybdenum ratio in the 1965-1966 survey area was 3.3:1. That of the soils was 0.9:1 (pH of 5.0) and that of the silts was 2.5:1 (pH of 7.0). It was determined that at low pH like that of the average soil, molybdenum formed stable molybdates and copper did not form stable compounds and was partly lost (Gambardella and Richardson, 1967).



Source: Ostler, 2019

Figure 4 Historic (1965 to 1989) Exploration Summary Map



Source: Ostler, 2019

Figure 5 Simplified Geology from the 1966 Southwest Potash (AMAX) Work

1967 to 1978 There is no record of any work completed in the current Mantle property area between 1967 and 1978.

1979 In March, 1979 AMAX of Canada Ltd. staked the Mat 1 and 2 claims. Those two modified grid claims comprised a total of 40 units that covered 1,000 ha in an area that covered most of the current MANTLE 1 to 4 claims.

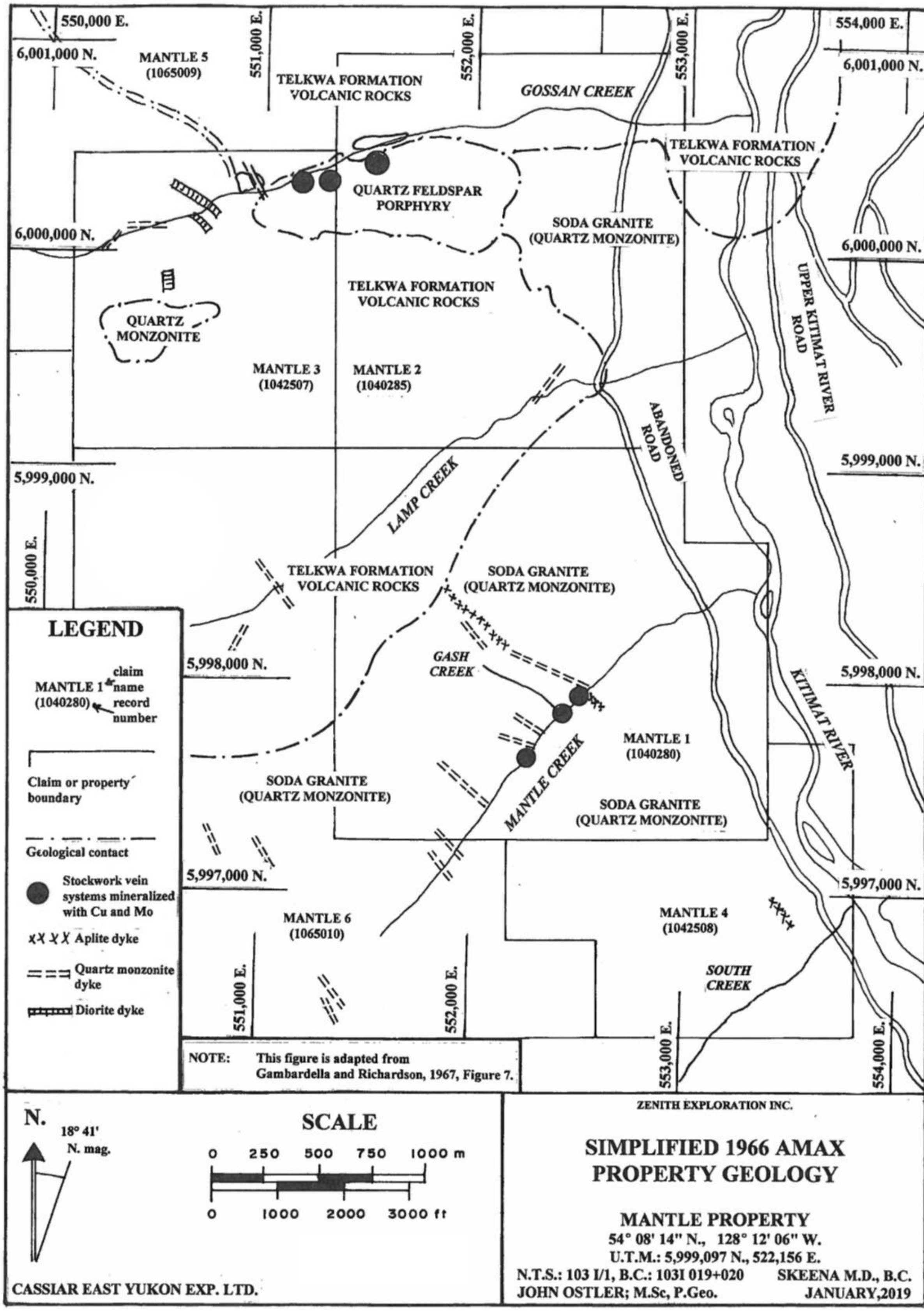
A 3-man crew was on the property from August 23 to 27 and from October 27 to 30, 1979 conducting soil and rock-chip surveys. Work was done over two small grids. A grid was located north of the Gossan Creek molybdenite stockwork zone near the north-eastern corner of the current MANTLE 2 (1040285) claim; the other was north-west of Lamp Creek near the common corner of the present MANTLE 1 to 3 (1040280, 1040285, and 1042507) claims (Figure 8). Rock chips were collected from the noses of slopes between Gossan and Lamp creeks and between Lamp and Mantle creeks. A total of 134 soil samples were collected at locations spaced at 50-m intervals along lines spaced 100 m apart (Allen and Fleming, 1979). 26 rock-chip samples were collected. All samples were assayed for nine elements including copper and molybdenum.

Allen and Fleming, 1979 described the results of the 1979 AMAX soil surveys as follows:

> "Mo and Cu soil anomalies (>4 ppm Mo., >100 ppm Cu) were outlined in each of the sampled areas (Figure 8). Mo values ranged from 1-350 ppm with a frequency curve peaking at 0-10 ppm. Cu values ranged from 0-1940 ppm with a modal value between 20 and 40 ppm.
>
> Adjacent to Gossan Creek, a 250 X 100 m (820.2 X 328.1 ft) Cu anomaly is coincidental with the southern lobe of a larger Mo anomaly. Conversely, one and a half km (0.92 mi) to the south adjacent to Lamp Creek, The Mo and Cu anomalies are generally non-coincidental.
>
> South of the anomalous zone in Gossan Creek, are large precipitous cliffs exposing significant molybdenite and chalcopyrite (?) mineralization. Soil geochemistry has therefore, possibly defined the northerly extension of the mineralization.
>
> The isolated Mo and Cu anomalies in Lamp Creek are interesting due to the fact that mineralization is not apparent anywhere along Lamp Creek. The anomalies are closed off on all sides and do not appear to meet with a previously determined open anomalous area extending down from the northeast (Figure 8).
>
> A greater percentage of soil samples were found to be anomalous in Mo than in Cu (68% vs. 45%). Assays taken from chip sampling in 1966, however, repeatedly indicated high copper concentration over Mo. The chemical nature of the soil is thought to mobilize Mo more than Cu."

1980 to 1983 One year of assessment credit was applied for the 1979 work to the Mat 1 and 2 claims. It is assumed these Mat 1 and 2 claims lapsed in 1980. No record of further work is available in the current Mantle property area from 1980 to 1983.

1984 In June, 1984, a new set of MAT 1 and 2 claims were staked for ABO Oil Corporation. The 1984 MAT property was the same size in the same location and as the 1979 AMAX Mat property comprising 40 units covering 1,000 hectares.



Source: Ostler, 2019

Figure 6 1965 and 1966 Molybdenum in Soils Map

ABO Oil contracted with A&M Exploration Ltd. of Vancouver, B.C. in 1984 (D.G. Allen's exploration services company) to conduct exploration on the MAT property. Prospecting and geochemical sampling was conducted by a 2-man crew from June 16 to 20, 1984. The 1984 work was conducted to confirm AMAX's 1966 work and to investigate the precious metal potential of the property area. A total of 123 soil, silt, and rock-chip samples were taken in the lower parts of Gossan, Lamp, and Mantle creeks (Figure 7 and Figure 8). Allen, 1984 reported upon the results of the 1984 ABO oil exploration program as follows:

> "Molybdenum and copper values range up to 2400 ppm and 2440 ppm respectively. This data confirms results obtained from previous sampling. A number of zinc geochemical anomalies (150 to 418 ppm Zn) were obtained on the north slopes of Mantle Creek. Lead values are low and are not considered to be in the anomalous range. All gold values are 10 ppb. A few anomalous silver values (up to 3.8 ppm Ag) were obtained in Gossan Creek."

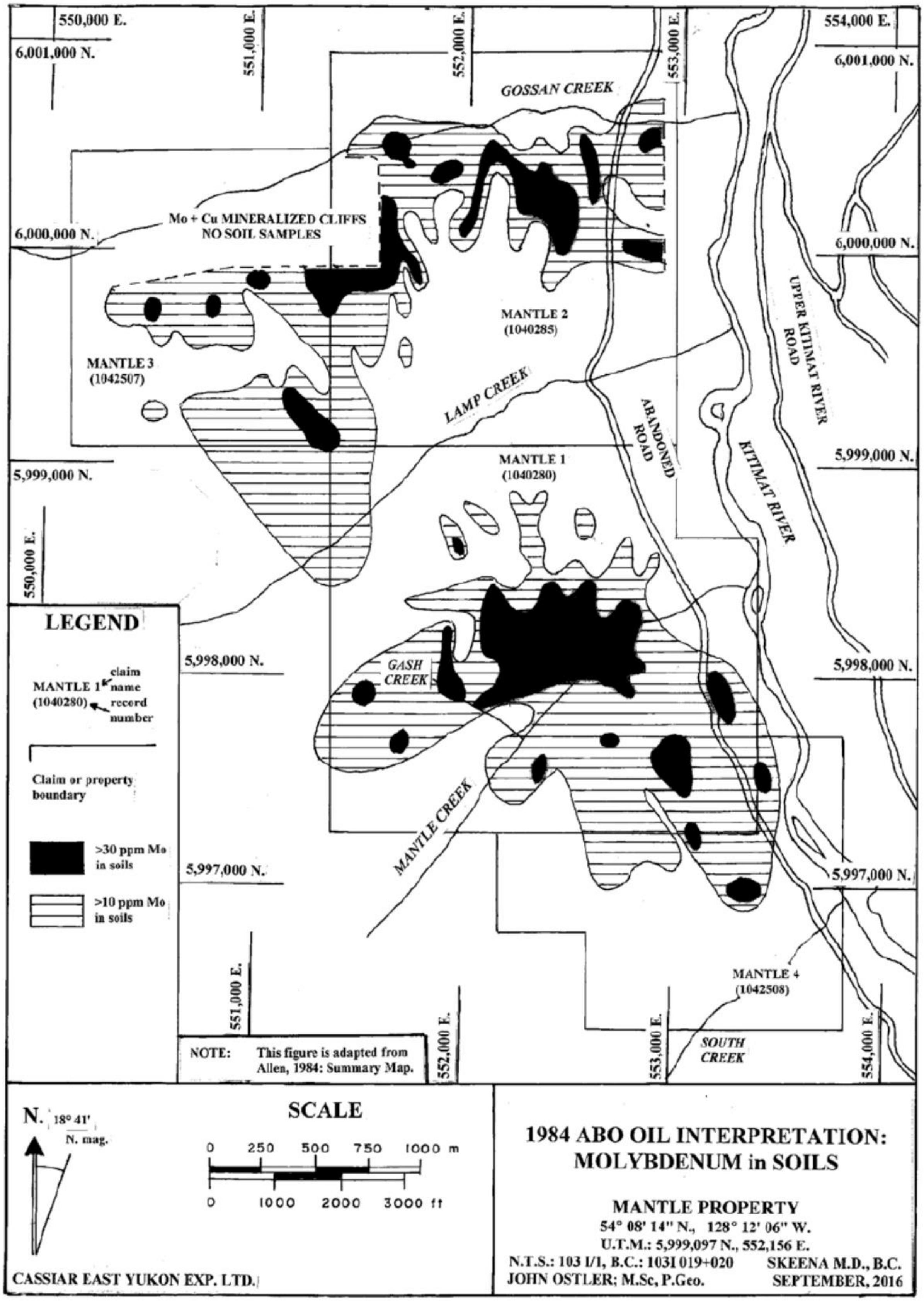
Allen, 1984 concluded that the area probably could not host a precious-metal deposit. On his interpretation map, Allen re-outlined both the Gossan Creek and Mantle Creek soil-molybdenum anomalies (Figure 7). The 1984 soil-sampling was too restricted both in number and in area (Figure 8) to justify re-outlining those anomalies on its own. John Ostler opined that the soil-molybdenum anomalies on Allen's map were mostly due to a re-interpretation of the previous 1965 to 1979 AMAX soil data.

1985 On June 16 and 17, 1985 Gord Allen and D. Sorenson took 145 soil samples along 6 contour lines in the area of the south-eastern extension of the mid 1960s Mantle Creek soil molybdenum anomaly (Allen, 1985) (Figure 7 and Figure 8). Work was done in an area in the south-eastern part of the current MANTLE 1 (1040280) claim and in the adjacent north-eastern part of the current MANTLE 4 (1042508) claim. Results confirmed those of the 1966 AMAX soil survey in that area (Figure 6). 1986 ABO Oil Corporation contracted with A&M Exploration Ltd. to conduct a horizontal loop electromagnetic survey on the MAT property (MacQuarrie and Allen, 1986). The work was subcontracted to Shangri-La Mineral Exploration Consultants and was done from June 21 to 22, 1986.

The electromagnetic survey and its results were described as follows:

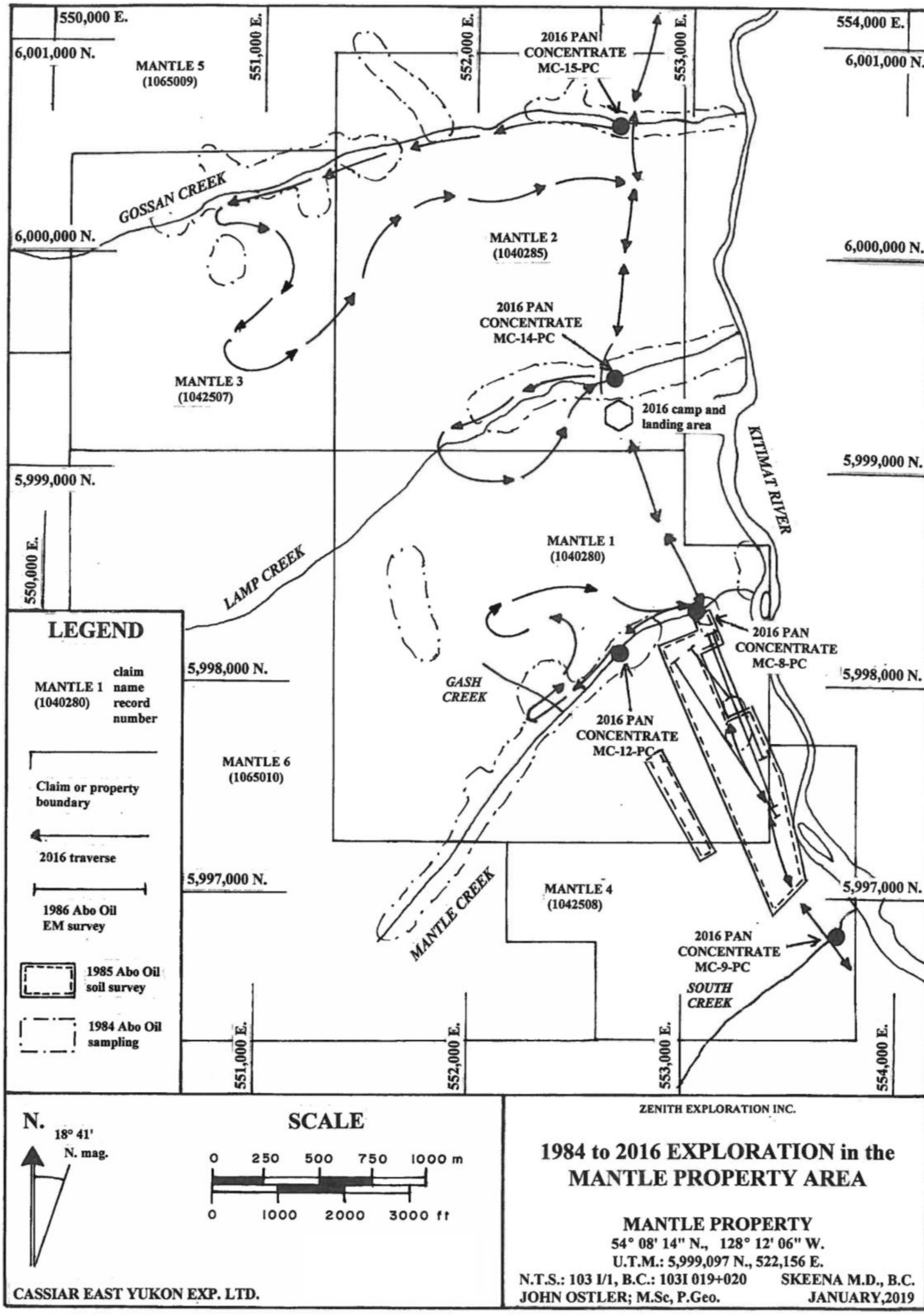
> "A Scintrex Genie SE-88 horizontal loop electromagnetic survey was carried out ... (over the 1985 ABO Oil grid area (Figure 8)) ... in order to test the previously located soil geochemical anomaly ...
>
> A total of 2.8 line kilometres (1.7 line-mi) of surveying was completed on four flagged lines. A loop separation of 50 metres, a frequency pair of 112/3037, and a 12.5 metre station separation were used for all observations ...
>
> No conductors were detected by the survey. This indicates that the soil geochemical anomalies are not related to massive sulphide type or massive sulphide stringer type conductors, and therefore are probably related to quartz stringer mineralization as seen elsewhere on the claims."

1987 to 2015 Although the current Mantle property area was staked several times with no recorded exploration work in the property area from this period known to the author.



Source: Ostler, 2019

Figure 7 1984 Molybdenum in Soils Map



Source: Ostler, 2019

Figure 8 Recent (1984 to 2016) Exploration Summary Map

2015 On December 1, 2015 the current Mantle property area was abandoned by the then claim holder and John Ostler map-staked the MANTLE 1 and 2 (1040280 and 1040285) claims to cover the Gossan and Mantle creek soil-molybdenum anomalies and stockwork zones (Figure 8).

2016 On March 2, 2016, John Ostler map-staked the MANTLE 3 and 4 (1042507 and 1042508) claims to include the mineralized cliffs south of Gossan Creek and the south-eastern extension of the Mantle Creek soil-molybdenum anomaly.

The 2016 field exploration program was conducted by John Ostler and an assistant. Work on the ground was done between July 29 to August 5, 2016. The work focused on the hydrothermal alteration related to copper and molybdenum mineralization around Gossan, Lamp, and Mantle creeks, and investigation of the provenance of the 1965-1966 AMAX molybdenum in soil anomalies near Gossan and Mantle creeks. Five pan concentrates were collected and analysed from the creeks draining the west side of the valley including two in Mantle Creek and one each in South, Lamp and Gossan Creeks (Figure 8). A prospecting, geological mapping and site review was also completed in the areas of previous anomalous molybdenum soil values in various traverses outlined in Figure 8. The work confirmed the alteration and mineralization outlined in the 1965 and 1966 work. This field work was the basis of the recommended work completed by Zenith Exploration in 2018 and summarized below.

2018 On December 6 and 7, 2018 the field data collection portion of an airborne geophysical surveys of the Mantle property was completed. The surveys were undertaken by Precision GeoSurveys Inc. of Langley, BC. In 2019 John Ostler completed an assessment report (Ostler, 2019) that included interpretation of the results of this survey. The surveys were completed using a Bell 206LR Long Ranger helicopter, registration C-GCHM, provided by Quantum Helicopters Ltd. at a nominal height of 40 m AGL. There was a magnetometer and radiometric sensor on the aircraft and a ground base station setup near the airport in Terrace BC. The surveys were flown over 407 line-kilometres at a nominal height of 40 metres above the ground of airborne surveying in a systematic east-west grid nominally 55 meters apart with north-south tie-lines and data checks.

The surveys are summarized in the Figures below. North arrow is to the top of these images that are defined in WGS84 datum UTM Zone 9N. There were many different raw data maps plus calculated derivative data included in the Precision GeoSurveys data sets. The figures chosen reflect the best details for a mineralized system such as Mantle that are included in this report are:

-
- Source Ostler, 2019
- Figure 9 Airborne geophysical surveys boundary relation (red) with claims (blue)
- Figure 10 2019 Survey Total Magnetic Intensity
- Figure 11 Gossan Creek cross-section
- Figure 12 Total Radiometric Count Map

Ostler, 2019 interpreted the results of the magnetic survey as:

> "Total Magnetic Intensity (Figure 10)
>
> 1. Total magnetic intensity is related directly to the amount of rock exposure which is greatest at higher elevations (…). Regolith appears to be less magnetic than the rock from which it was

derived. Probably, this is due to the oxidation and destruction of magnetic minerals during rapid weathering in an area of intense rainfall.

2. At the scale of the airborne survey, there seems to be only a moderate difference in total magnetic intensity among different rock types. For example, the total magnetic intensity of the intermediate volcanic rocks forming a keel beneath Lamp Creek in the centre of the property area appears to be only slightly less magnetic than the granitic intrusive rocks that flank the keel to the north (…) This may be due to a buffering effect on magnetic intensity of magnetite-bearing potassic alteration that is present throughout the northern property area.

3. Three generations of major linear structures are clearly visible via the distribution of total magnetic intensity across the property area:

(a) An early north-south fracture set that is most prominent near the eastern property boundary is parallel with the structure that controls the course of Kitimat River north of Mantle Creek. The curve in the trace of this fracture set from north-south to about 150-330° indicates that it has a steep eastward dip around the flexure (…).

This fracture set is interpreted to be related to accommodation of Telkwa Formation (Hazelton Group) volcanic stratigraphy during the emplacement of Middle Tertiary-age felsic intrusive rocks in and west of the property-area. Gambardella and Richardson (1967) recorded that most mineralized fractures and veins had orientations from 004/90° to 140/60° SW. The early north-south fracture set is interpreted to be related to alteration and mineralization. AMAX found only weak mineralization east of Kitimat River (Gambardella and Richardson, 1967). The course of Kitimat River may be the location of an eastern boundary fault zone to calc-alkalic porphyry alteration and mineralization (…).

(b) There is a second set of major fractures that determines the courses of Gossan, Lamp, and Mantle creeks across the Mantle property, occurring as a further development of accommodation of the volcanic stratigraphy to growing intrusions. These fractures are either coeval with or slightly younger than the early north-south fracture set. They splay outward to the west of the flexure of the early fracture set. From north to south, these faults are oriented at: 071-251° along Gossan Creek, 056-236° along Lamp Creek, 035-215° along Mantle Creek (…).

These faults are interpreted to be dilatant and shear zones up through which quartz monzonite and then quartz-feldspar porphyry stocks that slightly post-date the main intrusion developed. They are the conduits for alteration +/- mineralization are exposed in Gossan, Lamp and Mantle creeks. Mineralization exposed from Gossan to Mantle creeks is the result of fluids migrating upward and west-southwestward along the fractured dilatant and shear zones that determine the courses of those creeks (…).

(c) Northwest-southeasterly trending linear features extend throughout the Mantle Property-area. They cut cleanly across all stratigraphy, alteration and mineralized zones. They host narrow, highly magnetic bodies that are interpreted to be mafic dykes (…). They are interpreted to be Miocene to Pliocene in age and post-date porphyry system development, alteration, and mineralization."

As well from Ostler, 2019;

"Vertical Magnetic Gradient

1. The calculated vertical magnetic gradient enhances visibility of narrow steeply dipping structures across the property area (…).

2. Structures from early, Eocene-age faults and fractures have low magnetism, probably (due) to magnetite-destructive alteration and siliceous fluid injection. Structures relating to the later, Miocene to Pliocene-age structures are very magnetic, substantiating the presence of iron-rich mafic dyke-filling fluids within them. This is further evidence that the first two fracture sets are related to hydrothermal system development, and that the later fracture system post-dates mineralization.

3. The magnetism along Lamp Creek is less intense than it is along Gossan and Mantle creeks. This is interpreted to be due to filling of the creek bed area with unmineralized and less-altered or more weathered regolith than is present at the other two creek bottoms."

and further from Ostler, 2019;

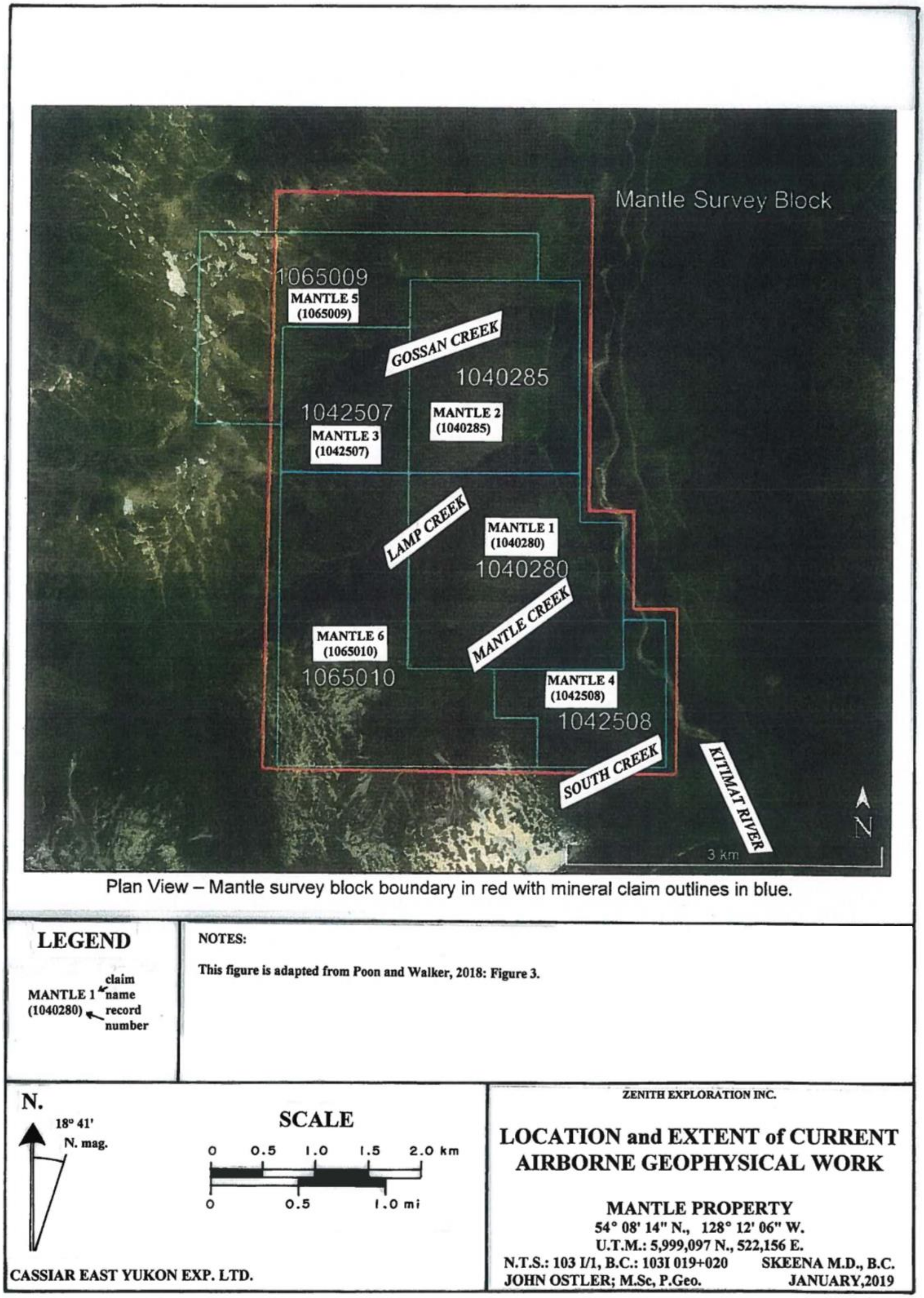
"Horizontal Magnetic Gradient

1. The calculated horizontal magnetic gradient (...) enhances details of minor linear features such as faults, veins and dykes. The three major fault sets reported by Gambardella and Richardson (1967) (…) are clearly visible.

2. The calculated horizontal magnetic gradient brings out detail of a circular magnetic feature that has a less magnetic core. The circular feature is located atop the ridge in the southwestern part of the MANTLE 1 (1040280) claim at U.T.M.: 5,998,200 N., 551,400 E. (…). It is about 400 m (1,312 ft) in diameter and it is located southwest of main Mantle Creek soil-molybdenum anomaly. A single soil line run along the ridge through the feature hosts a significant soil-molybdenum anomaly across the feature. It is interpreted to be a pipe-like structure and possibly a conduit for mineralization (…)."

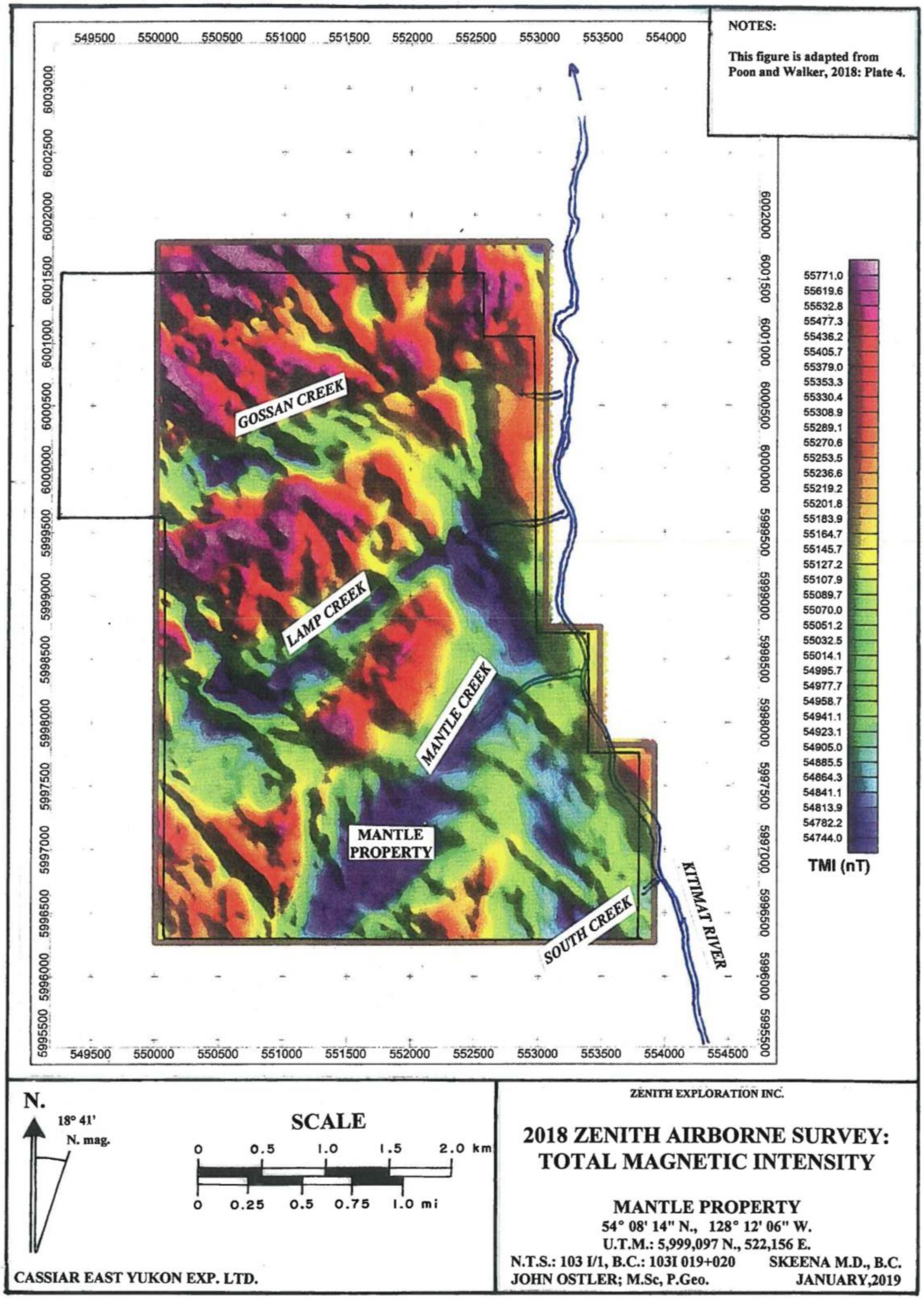
Radiometric Survey Results Interpretation

The radiometric results were flown in December along with the magnetics with snow (up to 0.6 m) on the ground at the higher elevations. The water content of the snow will attenuate the radiometric signal and decrease its intensity and/or distort its distribution to varying degrees based on snow depth and similar factors. Notwithstanding these decreased quality of values from the snow's presence the resulting information in this study is still of value and consideration with these limitations in mind. The very highest elevations will have irregularities due to the snow but general trends can be suggested and incorporated into the interpretation.



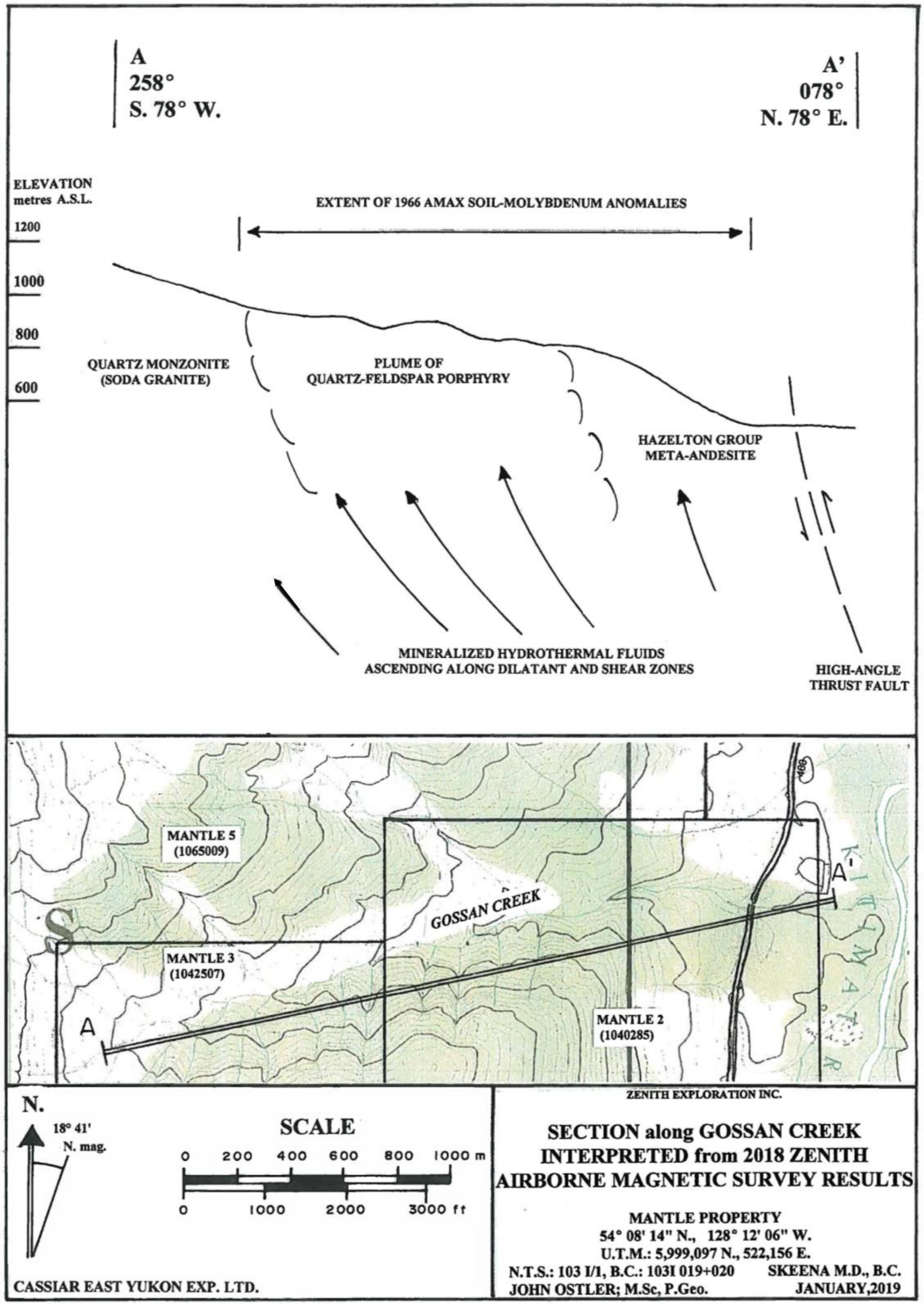
Source Ostler, 2019

Figure 9 Airborne geophysical surveys boundary relation (red) with claims (blue)



Source Ostler, 2019

Figure 10 2019 Survey Total Magnetic Intensity



Source Ostler, 2019

Figure 11 Gossan Creek cross-section Interpretation

Ostler, 2019 interprets the results of the radiometric survey as:

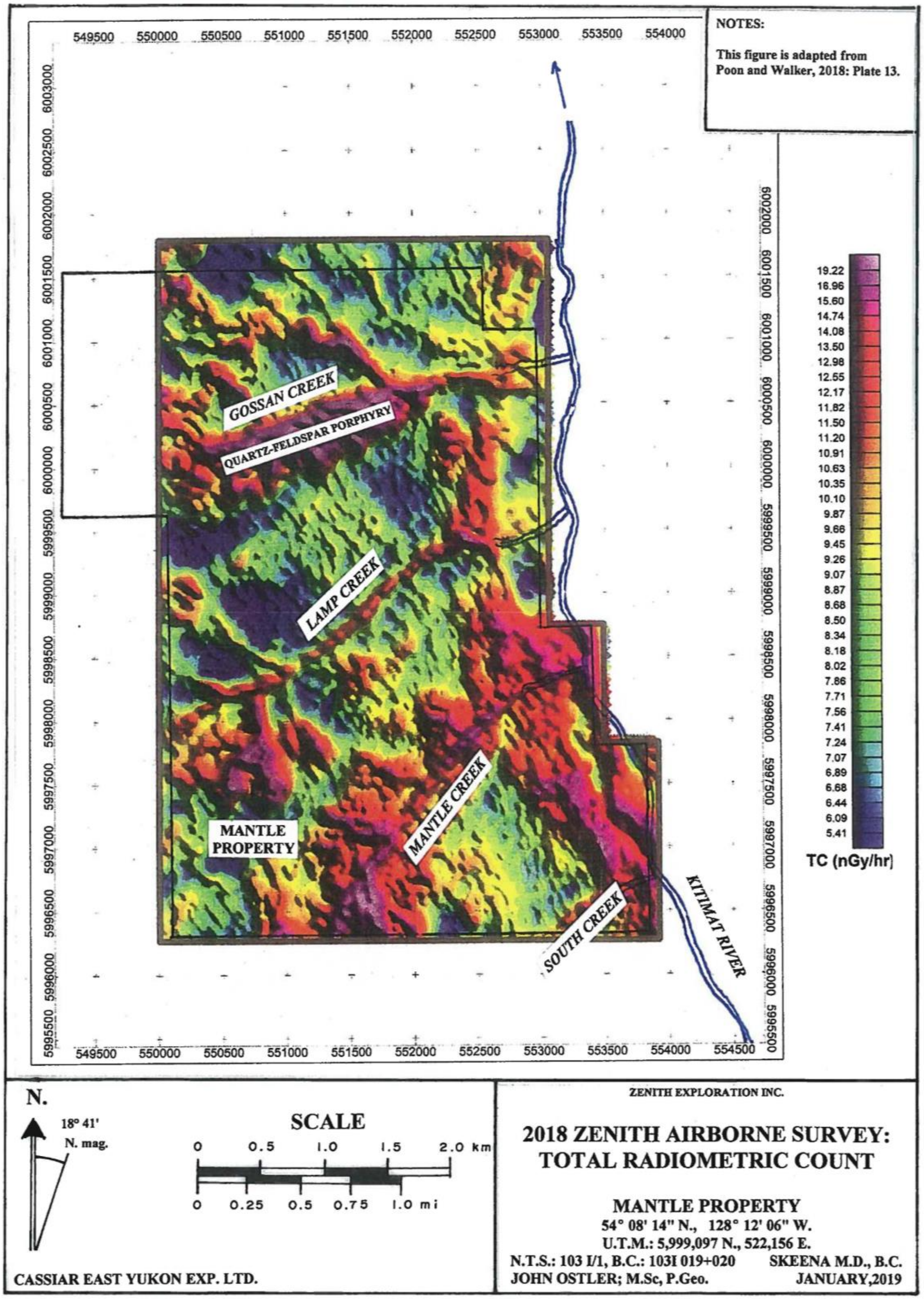
"1. Sub-vertical Crustal Structures

These are related to accommodation of country rocks to expansion of parasitic plutons east of the local Coast Plutonic Complex batholith. The total radiometric count (…) enhances the picture shown by the total magnetic intensity (…) of a series of conjugate dilations and shears emanating westward from a steeply eastward dipping thrust zone. Not only are these structures highly magnetic, they are also quite radioactive compared with the surrounding country rocks. Conjugate shear structures extending northwest from the three major creeks on the property are expressed well in the total radiometric count (…) (Figure 12). The quartz-feldspar porphyry that is intimately associated with molybdenum and copper mineralization and with the soil molybdenum anomaly at Gossan Creek (Ostler, 2016) (…) is very radioactive. It is interpreted to be a plume of hydrothermal fluid from the system that produced the aforementioned fracturing and faulting that is exposed at surface (…).

2. Stratigraphic Differences in Radiation

The quartz-feldspar porphyry exposed in the upper part of Mantle Creek and the soda granite or quartz monzonite exposed in the southern part of the property area (Gambardella and Richardson, 1966) (…) are quite radioactive compared with the rocks in the property's northern part. Consequently, total radiation counts for all elements tested are higher in the southern part of the property area (…).

There is a keel of Telkwa Formation (Hazelton Group) andesitic volcanic rocks exposed in the lower parts of Gossan and Lamp creeks (…). One could expect that the radiometric signal from that keel would be different from the adjacent igneous rocks. It is almost invisible in the distributions of radiation (…). The keel hosts pervasive potassic alteration and silicification and is variably melted within 400 m (1,312 ft) of the contact with the quartz-feldspar porphyry in Gossan Creek. The author opines that the volcanic keel was so pervasively altered by the Mantle hydrothermal system that it now is radiometrically similar to the other altered intrusive rocks adjacent with it. This is substantiated by the Gossan Creek soil molybdenum anomaly which crosses an intrusive boundary into the andesitic keel as if the boundary had no effect"



Source Ostler, 2019

Figure 12 Total Radiometric Count Map

Ostler, 2019 continues:

> "3. Potassic, Phyllic, and Propylitic Alteration
>
> Calc-alkalic porphyries can have a wide variety of radiometric signatures that range from a potassium/thorium high that looks a lot like the anomaly over an alkalic porphyry only weaker, to an annular potassic zone with a potassium/thorium radiation high intruded by a central phyllic core that has carried away most radioactive minerals and has a radiometric low, to a situation like around the quartz-feldspar porphyry at Gossan Creek, where a phyllic alteration zone has almost completely overprinted the potassic zone and produced a potassium/thorium radiation low (…). The roughly circular shape of the phyllic alteration zone around the quartz-feldspar porphyry at Gossan Creek is expressed best in the distribution of Uranium equivalent radiation (…). All major soil-molybdenum anomalies on the property are related to areas of comparitively low potassium and thorium (…). This is further evidence that molybdenum mineralization at the Mantle property is related to phyllic alteration."

7 GEOLOGICAL SETTING AND MINERALISATION

7.1 Regional Geology

As noted in Ostler, 2016 the most definitive regional mapping conducted in the upper Kitimat River area was by S. Duffell and J.G. Souther, 1964 of the Geological Survey of Canada.

Duffell and Souther's summary of the geology of the Terrace map area was as follows:

> "GENERAL GEOLOGY
>
> The geology of the Terrace map-area may be briefly stated as that of a part of the eastern contact of the Coast Range batholith, and the flanking metamorphosed sedimentary and volcanic rocks that range in age from late Palaeozoic to early Cretaceous. The stratigraphy of the thick sequence (15,000 to 20,000 feet (or 4,570 to 6,100 m)) of metamorphosed volcanic and sedimentary rocks is imperfectly known. Correlations of sections from one area to another, or even from one place to another in a small area, cannot be made with certainty. Fossil evidence obtained proves the existence of rocks of Permian, Triassic, Jurassic, and Cretaceous? Age, but their boundaries are difficult to establish ...
>
> … Lying above the Triassic rocks in conformable succession is a series of volcanic and minor sedimentary rocks referable to Middle Jurassic strata of the Hazelton Group (now further sub-divided into the Telkwa Formation). These rocks may be divided into a lower division of coarse andesitic breccia, green andesite, and intercalated greywacke and argillite; and an upper division of red, green, and purple, porphyritic and amygdaloidal andesitic flows with minor basalt, rhyolite, and dacite. This upper division is lithologically similar to volcanic rocks lying conformably above Middle Jurassic sedimentary strata in the Whitesail Lake map-area to the southwest ... Lying above the Middle Jurassic volcanic rocks with marked angular discordance is a series of marine and continental sedimentary rocks of Upper Jurassic age that may include some Lower Cretaceous strata and is referable to the Bowser Group. Marine beds near the bottom of this group yielded ammonites,

pelecypods, and brachiopods of Upper Jurassic age. Greywacke and argillaceous beds higher in the group yielded perfectly preserved plant remains mainly of Jurassic age but possibly including some of Cretaceous age.

The structure is dominated by the Coast Intrusions, which occupy most of the western and southwestern parts of the area and intrude all the sedimentary and volcanic formations described above. The main contact of the intrusions trends northwesterly across the area in an extremely irregular manner. Great apophyses extend northeastward nearly to the eastern boundary of the area. The intruded strata generally dip to the northeast, away from the main contact; local structures although often complex, tend to conform with the local configuration of the intrusive bodies. Granodiorite and adamellite (quartz-hornblende-mica diorite) are dominant rocks of the main batholith. Apophyses and stocks are generally more basic and consist mainly of quartz diorite, diorite, gabbro, and minor syenite. True granite is a minor component of both.

Dykes are abundant in the area and cut both bedded and batholithic rocks. They vary in composition and include such rock types as granite, diorite, aplite, lamprophyre, basalt, and porphyritic variations; pegmatites are conspicuous by their absence. Commonly dykes have exercised structural control on the localization of mineral deposits.

Regional metamorphism is of the lowest grade. Chlorite, muscovite, and minor epidote are present as secondary minerals in volcanic and sedimentary rocks but, with the exception of rocks near igneous contacts and faults, the texture and mineral composition of the original rocks have not been greatly altered. Contact metamorphism on the other hand has been extremely varied. Commonly rocks adjacent to the batholith are of the albite-epidote-amphibolite facies. Some rocks may show no megascopic alteration, whereas others fall within the highest grades of contact and dynamic metamorphism. Crystalline schists and gneisses of the latter type are more commonly developed along contacts with the main batholith than along contacts with the apophyses and stocks.

Deuteric alteration of the granitic rocks, with the development of sericite, actinolite, and epidote, is almost universal throughout the area."

The 1965-1966 Southwest Potash/AMAX regional program included regional mapping of the upper Kitimat River area (Figure 10). Mineralization in the current Mantle property area was found to be hosted by grey soda granite (quartz monzonite) and leucocratic altered granite. Those granitic rocks were determined to post-date the main granodioritic intrusion exposed south of upper Kitimat River.

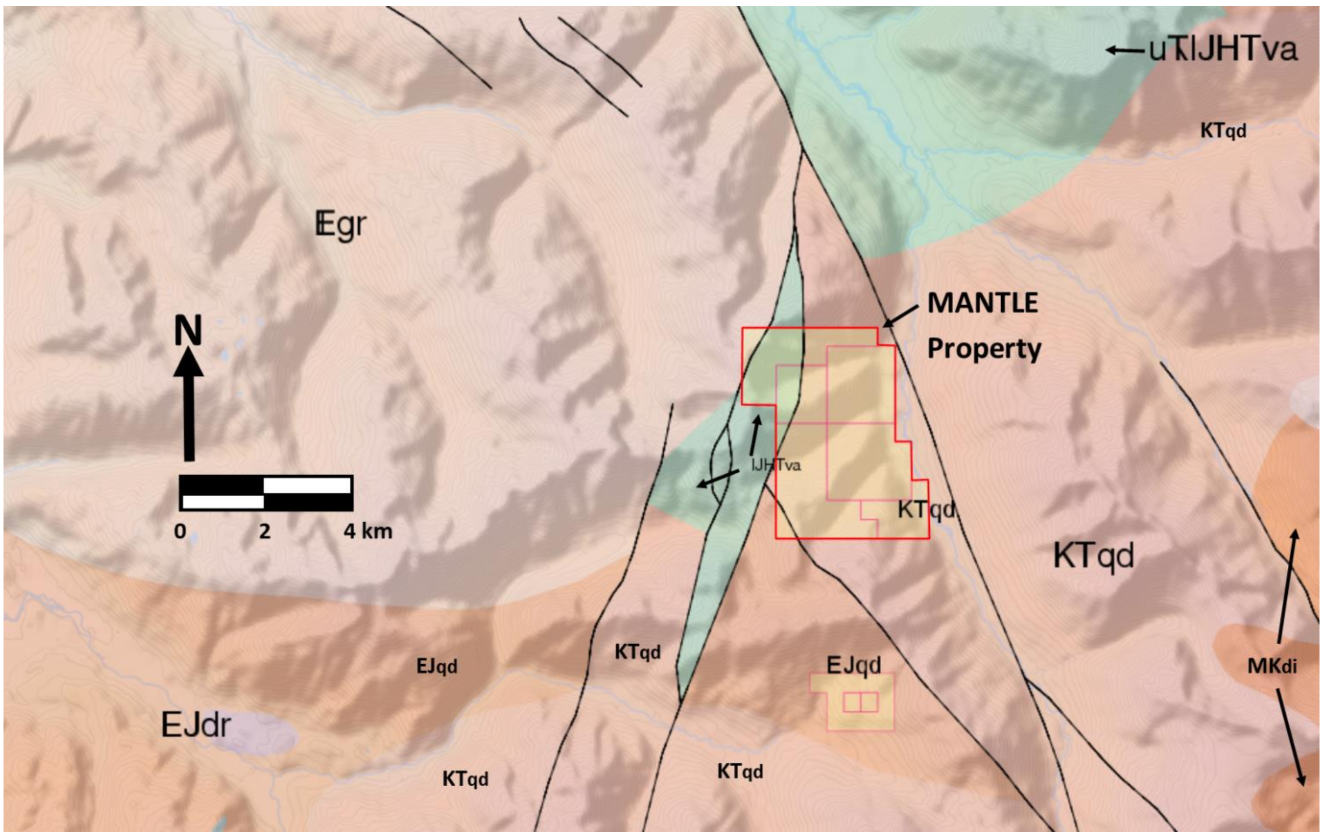
In 1969 Nick Carter and Ted Grove, published a 1:250,000 scale geological map in BC Department of Mines and Petroleum Resources, Preliminary Map No. 6 as a compilation of the region. The shapes of the units particularly the Hazelton/Telkwa reflect closely to the mapping of Southwest Potash/AMAX as seen in Figure 14.

Subsequently, the work of Duffel and Souther, 1963 was included in a regional compilation by Hutchison et al., 1979, on Geological Survey of Canada Map 1385A. In that 1: 1,000,000-scale compilation, the whole Mantle property area fit easily into a 5 X 5 mm square. No new mapping was done in the property area to develop this map from the 1963 map.

In 1985 Woodsworth, Hill, and van der Heyden published a regional map of the Terrace East Half mapsheet in GSC Open File 1136 at a scale of 1:125,00. This map includes a description the various units defined but is not accompanied by a description of the geological relations and regional alteration systems.

Figure 13 below is sourced from the BC MapPlace and is largely based on Woodsworth, et. al., 1985 with mapping along the northern edge sourced from the mapping in Nelson, 2009.

From 2005 to 2008, Joanne Nelson et al. conducted regional mapping in the Terrace-Kitimat area (Nelson, J. et al., 2008 and 2009). Mapping extended southward to the upper Kitimat River area, just north of Mantle, during the last year of the program. However, the focus of that mapping was on Late Palaeozoic-age volcanic rocks exposed north-west of the town of Kitimat. No work was done over the current Mantle property. Nelson et al., 2009 noted that the main intrusion in the upper Kitimat River area was related to the Williams Creek pluton. They assigned an age of Eocene or younger to the Williams Creek pluton because of its lack of penetrative cleavages. This is consistent with Miocene to Pliocene age determinations in the granodiorite in the Mackay Creek area about 10 km west of the current Mantle property area.



Source: BC MapPlace after Woodsworth, et. al., 1985

Figure 13 Regional Geological Map

Table 5 Geological Units in the Regional Geological Map

Unit Name	Age	Rock Type	Comment	Colour
Egr	Eocene	granite, granodiorite	Kitimat River pluton	light pink
KTqd	Late Cretaceous to Paleocene	quartz diorite		pink
MKdi	Early Cretaceous	diorite, gabbro		dark orange
EJdr	Early Jurassic	diorite		light orange
EJqd	Early Jurassic	quartz diorite	Poison Pluton	mid orange
lJHTva	Lower Jurassic	andesite, dacite, volcaniclastics	Telkwa Formation	green
uTrlJHTva	Triassic to Jurassic	andesite	Telkwa Formation	green
Black lines are faults				

NOTE: the shape and detailed location of the Telkwa Formation in Figure 13 varies from what was seen on the property as defined by detailed local mineral exploration mapping. This map and table are included since they confirm the local age relations well and show the general geological locations and general relationships. Figure 14 is reported by Ostler, 2016 to be more representative of the existing geology distribution and was collected in a more detailed field study and confirmed in part by his field work.

Regional airborne geophysical studies mainly by Geoscience BC have been completed over the region including the Mantle property. These include the 2008 airborne gravity survey (Sanders Geophysics, 2008) and the 2009 AeroTEM survey (Aeroquest Surveys, 2009). These surveys are potentially valuable due to the inclusion of gravity and EM that are not included in the detailed 2018 airborne surveys completed by Zenith. The 2015 airborne magnetic survey (Precision GeoSurveys, 2016) is also available but is at a higher flight elevation and wider line spacing than the 2018 Zenith airborne survey. These surveys as presented at a regional scale do not show any contrast but if they were reprocessed to concentrate on the local thresholds may add detail to the project.

7.2 Local Geology

The only significant previous study of the geology of the Mantle property area was conducted during 1965 and 1966 by AMAX (Figure 5). The results of that work were recorded by Gambardella and Richardson, 1967 as follows:

> **"Hazelton Group** (presently sub-divided into the Telkwa Formation)
>
> A roof pendant composed of medium to dark green, massive, undifferentiated volcanic rocks of the Hazelton Group ... is the oldest rock type in the property ... The rock is uniformly fine-grained and composed of feldspar, quartz, biotite, and hornblende. The grade of metamorphism is relatively low, and the main alteration products are epidote and chlorite. Along the contact with the granitic quartz-feldspar porphyry the volcanic rocks are finely brecciated and granitized. Molybdenite mineralization is generally absent except near the contact with the granitic quartz-feldspar porphyry in Gossan Creek (on the current MANTLE 2 (1040285) claim) where sporadic MoS_2-bearing quartz veins were noted.
>
> **Intrusive Rocks…**

The intrusive rocks underlying the property show considerable variation in texture and composition, and differ significantly from the rocks of the surrounding batholith. Two main intrusive facies, soda granite and granitic quartz-feldspar porphyry; two pre-mineral dykes, aplite and foliated feldspar; and a variety of post-mineral dykes ranging in composition from diorite to quartz-monzonite have been mapped on the property ...

Molybdenite mineralization is located largely in the soda granite and the granitic quartz-feldspar porphyry ... A tentative age sequence with respect to MoS_2 mineralization is (as follows):

Table 6 Tentative Geological Age Sequence at Mantle modified from Ostler, 2019

Age	Comment	Relative Age
Eocene to Oligocene 33.7-23.8 m.y.	Intermediate dykes Quartz-monzonite dykes Diorite dykes	Youngest (post-molybdenite mineralization)
Eocene 56.5-33.7 m.y.	Molybdenum mineralization Aplitic dykes Granitic quartz-feldspar porphyry Foliated feldspar-porphyry dykes Soda granite	↑
m.y. = million years	White biotite granodiorite	Oldest

White Biotite Granodiorite

The white biotite granodiorite crops out on a ridge on the extreme northwestern margin of the property, and is the most abundant rock type in areas adjacent to the property. The rock has a uniform medium-grained texture and is composed of white feldspar (70%), quartz (15-20%), biotite (5-10%), and hornblende (2%).

In thin section, euhedral crystals of plagioclase exhibit strong to moderate normal zoning and range in composition from An_{20} to An_{36}. Potash feldspar (perthitic in part) constitutes 10% of the rock and occurs as anhedral, poikilitic grains interstitial to plagioclase. Strained quartz is interstitial to both feldspars and appears to be replacing them. Unaltered flakes of brown biotite and hornblende laths are the mafic constituents. Accessory amounts of sphene, magnetite and apatite are present. With the exception of a slight sericitization of plagioclase cores, the rock is relatively free of alteration products.

Soda Granite (Quartz monzonite)

This rock constitutes the main intrusive body on the property. It underlies most of the eastern and south-central portions of the property (Figure 5). The colour varies from light pink to light grey and the texture from medium-grained hypidiomorphic granular to sub-porphyritic. The latter texture occurs only along the ridge tops, indicating the current level of erosion is close to the original intrusive surface level. Irrespective of texture and colour, the composition is essentially 50-60% plagioclase, 15-20% K-feldspar, 15-20% quartz, and 2-5% biotite.

Microscopic examination of a representative specimen from Mantle Creek gave the following results:

Plagioclase - euhedral to subhedral grains, with weak to moderate normal zoning and generally poor twinning. The composition varies from An8 to An12. The cores exhibit strong to moderate alteration to sericite and minor biotite.

K feldspar - occurs as coarse anhedral grains of string perthite, interstitial to plagioclase. Also as rims around plagioclase. Frequently the perthite is closely associated with quartz, suggesting a simultaneous crystallization of the two minerals either as a late cotectic crystallization or as hydrothermal replacement.

Quartz - anhedral grains, with undulatory extinction.

Biotite - brown, medium-sized flakes, occurring singly or in clusters, slightly altered to chlorite.

Opaque Minerals - finely disseminated dust of iron oxides and minor amounts of euhedral pyrite.

A partial chemical analysis of one sample of soda granite gave the following results: SiO_2, 71.7%; K_2O, 3.0%; Na_2O, 4.48%; and CaO, 0.825%.

Foliated Feldspar Porphyry Dyke

A dark grey, foliated feldspar porphyry crops out intermittently along a narrow zone on the northern slope of Gossan Creek between elevations of 2,000 and 2,500 feet (609.6 and 762 m) (near the northern boundaries of the current MANTLE 2 and 3 (1040285 and 1042507) claims). The texture is porphyritic with phenocrysts of subhedral feldspar and rounded quartz "eyes" set in a dark grey, aphanitic matrix. The pronounced foliation results from the planar orientation of biotite laths. Fracturing is generally weak except in areas of shearing. Along its northern margin the feldspar porphyry exhibits a chilled contact against the Hazelton (Telkwa) volcanics. The southern contact is, for the most part, covered by alluvium ... The feldspar porphyry is a dyke, 20 to 50 feet (6.6 to 15.2 m) wide, intruded parallel to the course of Gossan Creek. Molybdenite mineralization is generally absent ...

In thin section, the plagioclase phenocrysts show a pronounced oscillatory extinction, and a compositional range of An30 to An40. They constitute 20% of the rock. Alkali feldspar (perthite) occurs as anhedral phenocrysts (less than 10%) and as fine grained graphic intergrowths with quartz in the groundmass. Quartz phenocrysts make up 10% of the rock. They have slightly resorbed borders and wavy extinction due to straining. Biotite which constitutes approximately 12% of the rock is the only mafic present. Accessory amounts of magnetite, pyrite, apatite, and zircon are the remaining constituents.

Alteration of plagioclase to sericite and biotite to chlorite is widespread but generally weak.

Granitic quartz-feldspar porphyry

A body of pink, granitic rock outcrops as a steep cliff on the south slope of Gossan Creek, between elevations of 2,000 and 3,500 feet (610 and 1,067 m) (on the current MANTLE 2 and 3 (1040285 and 1042507) claims). The geometric configuration, especially with regard to its southern extension, remains largely undetermined because only the lower portion on the cliff is accessible. The ridge overlooking the cliff contains little or no outcrop. The texture of the rock varies from medium grained sub-porphyritic to fine-grained porphyritic. Two facies have been recognized:

a) a porphyritic muscovite border facies,
b) a sub-porphyritic biotite facies.

a) The porphyritic facies occurs at or near the contact with older volcanic rocks and in dykes and apophyses. Megascopically the rock is composed of pink to buff subhedral feldspar phenocrysts (30%) and rounded quartz "eyes" (10-15%), set in a fine grained groundmass of quartz and feldspar. Muscovite in euhedral flakes (2%) is the only mafic constituent and is diagnostic of this facies. In thin section, the feldspar phenocrysts consist of 20% sodic plagioclase (An8 to An10) and 10% perthite. The plagioclase crystals generally show corroded edges and some are badly shattered and altered. The perthite occurs as subhedral phenocrysts and as reaction rims around plagioclase, suggestive of a replacement origin. Quartz "eyes" (10-15%) are clear, with resorbed crystal edges and wavy extinctions. Some are distinctly ovoid in shape and have a crude alignment. Muscovite occurs as euhedral, inclusion-free flakes, and it appears to be of primary origin. Alteration of plagioclase to sericite is widespread and locally very intense. The groundmass is composed of a microcrystalline aggregate of quartz and feldspar (mostly alkali).

b) The sub-porphyritic biotite facies grades imperceptibly into the muscovite facies as the contact with the volcanic rocks is approached. The texture is medium-grained and weakly porphyritic. The primary mineral constituents are: quartz (25%), feldspar (65%), and biotite (2%). In thin section, the feldspars are composed of sodic plagioclase (An8 to An12), perthite and orthoclase. The plagioclase crystals occur as subhedral, cloudy grains with albite twinning. Perthite is largely interstitial and closely associated with quartz, forming coarse-grained, graphic intergrowths, suggestive of a late cotectic crystallization of the two minerals. Biotite occurs as individual flakes with ragged edges, partly altered to chlorite and as unaltered, fine-grained aggregates of apparently secondary origin.

Aplite Dykes

Several aplite dykes ranging in width from 10 inches (25 cm) to 20 feet (6 m) have been mapped throughout the property. Most of them occur in Gossan Creek (on the current MANTLE 2 and 3 (1040285 and 1042507) claims) (Figure 5), either within or peripheral to the granitic quartz-feldspar porphyry. They are typically pink in colour, with a fine-grained sugary texture and composed of pink feldspar, quartz, and accessory amounts of euhedral pyrite crystals. Occasional molybdenite bearing quartz veinlets indicate that they are of pre-molybdenum mineralization age. The close spacial relationship and the mineralogical similarity with the granitic quartz-feldspar porphyry strongly suggests that the aplite dykes are genetically related to the porphyry.

Diorite Dykes

Two diorite dykes, both approximately 40 feet (12.2 m) wide, occur near the heads of both Gossan and Mantle creeks ... The colour is dark green and the texture is medium-grained hypidomorphic granular. They are composed of 60% light grey feldspar, 35% mafics (hornblende, biotite, minor pyroxene), 5% quartz and accessory amounts of magnetite and pyrite. The massive, unfractured nature of the dykes and the lack of molybdenite mineralization indicate that they are post molybdenite mineralization in age.

Quartz-monzonite Dykes

Quartz-monzonite dykes ranging in width from 5 to 30 feet (1.5 to 9.1 m) are widely distributed throughout the property, but are especially abundant along the western margin of the map area. The dykes generally exhibit a well developed porphyritic texture, and they vary in colour from light grey to medium grey. They are composed of phenocrysts on white to buff feldspar (10-15% of the rock) and quartz (5% of the rock) set in a fine-grained matrix of feldspar, quartz, and biotite.

Intermediate Dykes

Intermediate dykes of andesitic composition ranging in width from 1 to 5 feet (0.3 to 1.5 m) occur throughout the property. These dykes are light to medium green in colour, aphanitic, and generally unfractured. They cut all other rock types on the property, and clearly represent the last stage of igneous activity in the area."

Ostler, 2016 completed traverses up Gossan and Lamp creeks and determined that the Hazelton-Group Telkwa-Formation rocks were pillowed andesites that were in part porphyritic. Sparse amygdules in pillow rinds indicated that the pillows were deposited in deep water.

No definitive geochronological work has been conducted on the rocks in the Mantle property area. Gambardella and Richardson, 1967 mapped the volcanic rocks exposed in Lamp Creek as part of the Hazelton Group (Telkwa Formation in modern descriptions). This unit was identified in Woodsworth, et. al., 1985 Figure 13, but the shape of the mapping does not agree with the detail seen on the property, including the area visited by the author.

Duffel and Souther, 1964 mapped the intrusive rocks in the property area as Late Cretaceous or younger (Figure 9). Hutchinson et al., 1979 mapped them as Early Tertiary in age. Nelson, 2009 determined from their lack of regional structures that they were of Eocene age and related to the Williams Creek pluton

The local igneous history as deciphered by Gambardella and Richardson, 1967 was as follows:

"Igneous History

General Statement

From a study of textural and mineralogical variations, contact features, and spatial relationships, some generalizations can be drawn concerning (I) the genetic relationships between the intrusive rock types, (ii) their mode of emplacement, (iii) the sequence of chronological events.

Sequence of Events

The white biotite granodiorite is the oldest rock type in the area. It is the most common and uniform member of the inner facies of the Coast Range Batholithic Complex, and is probably of Late Mesozoic or Early Cenozoic age. (Figure 14)

The relationship between the white biotite granodiorite and the soda granite can not be determined by direct geological evidence, since contacts between the two rock types are not exposed within the property. The soda granite may represent a contemporaneous, more acid phase of the white biotite granodiorite, or more likely, a later and separate intrusive phase. The latter hypothesis is favoured by the writer on the basis of the similarity on composition and close spatial relationship that exist between the soda granite and the granitic quartz-feldspar porphyry, which is definitely younger than the biotite granodiorite. The similarity in composition is shown by a partial chemical analysis of the two rocks ...

The position of the foliated feldspar porphyry in the sequence of events is not established. The rock is of pre-mineralization age and older than the granitic quartz-feldspar porphyry, since it is intruded by the latter. Compositionally it is more closely related to the white biotite granodiorite and probably represents a late phase of the granodiorite.

The intrusion of the granitic quartz-feldspar porphyry and related aplitic dykes and apophyses represents the last intrusive event in the property prior to molybdenite mineralization.

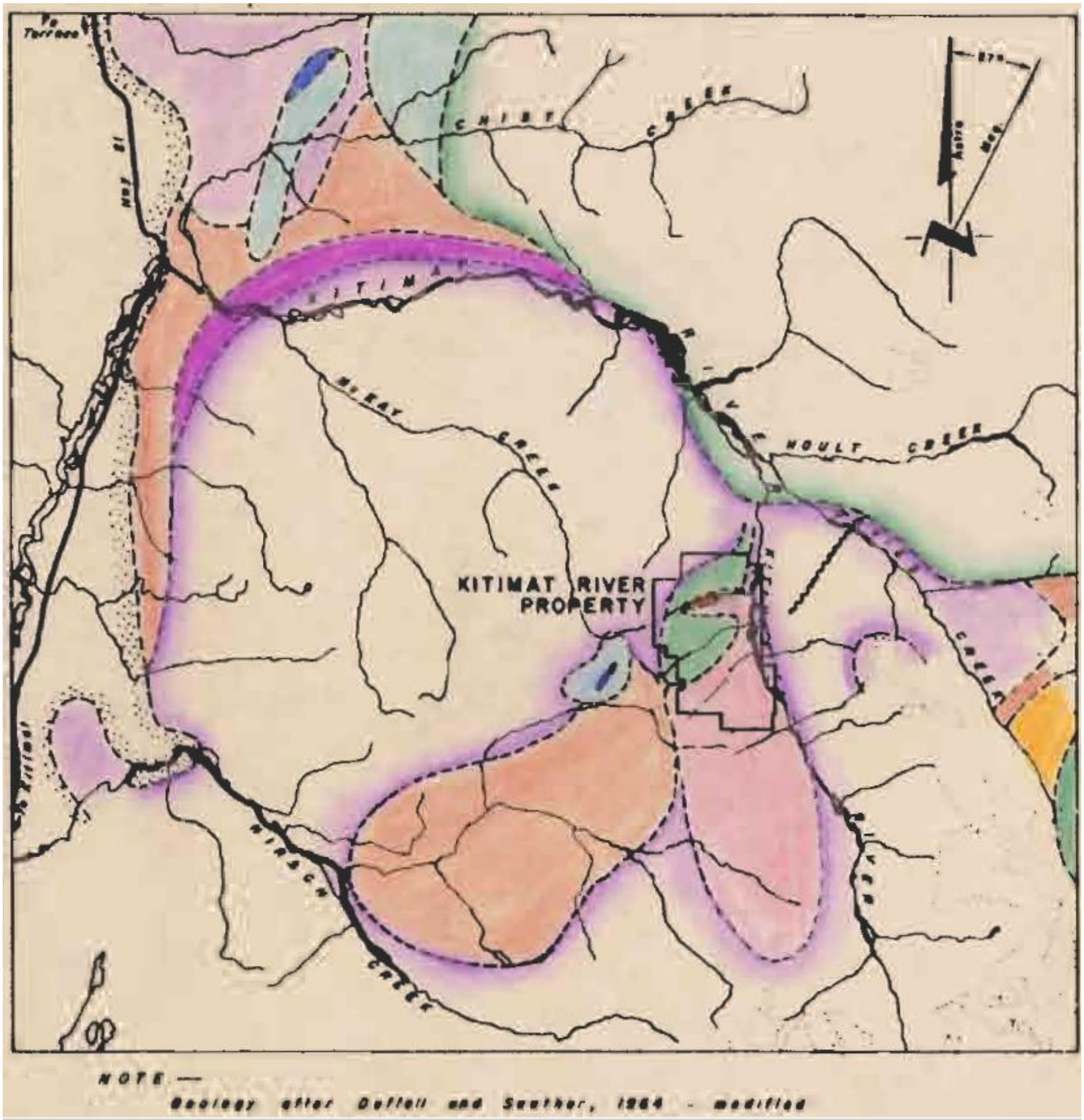
Mineralization (pyrite, molybdenite, chalcopyrite) occurred after the emplacement of the quartz feldspar porphyry and is probably genetically related to the porphyry. This is suggested by the comparatively high Mo content in dykes and apophyses related to the granitic quartz-feldspar porphyry relative to the Mo content of the older igneous rocks which they intrude.

Field evidence indicates that most of the faults and shears in the area were active after molybdenite mineralization. However, the rough correspondence of mineralized quartz veins with a main structural trend of shears and faults in the area suggests that the zones of weakness existed prior to the mineralization.

Hydrothermal alteration, chiefly feldspathization and silicification, became active in the area in conjunction with sulphide mineralization. Carbonate and hematite alteration remained active mainly along shear zones up to the intrusion of post-mineralization dykes.

The intrusion of post-mineralization dykes represents the last igneous event in the area. The dykes include diorite, quartz monzonite, and dykes of intermediate composition. They appear to be completely unrelated to the pre-mineralization rocks on the property and are probably of regional extent."

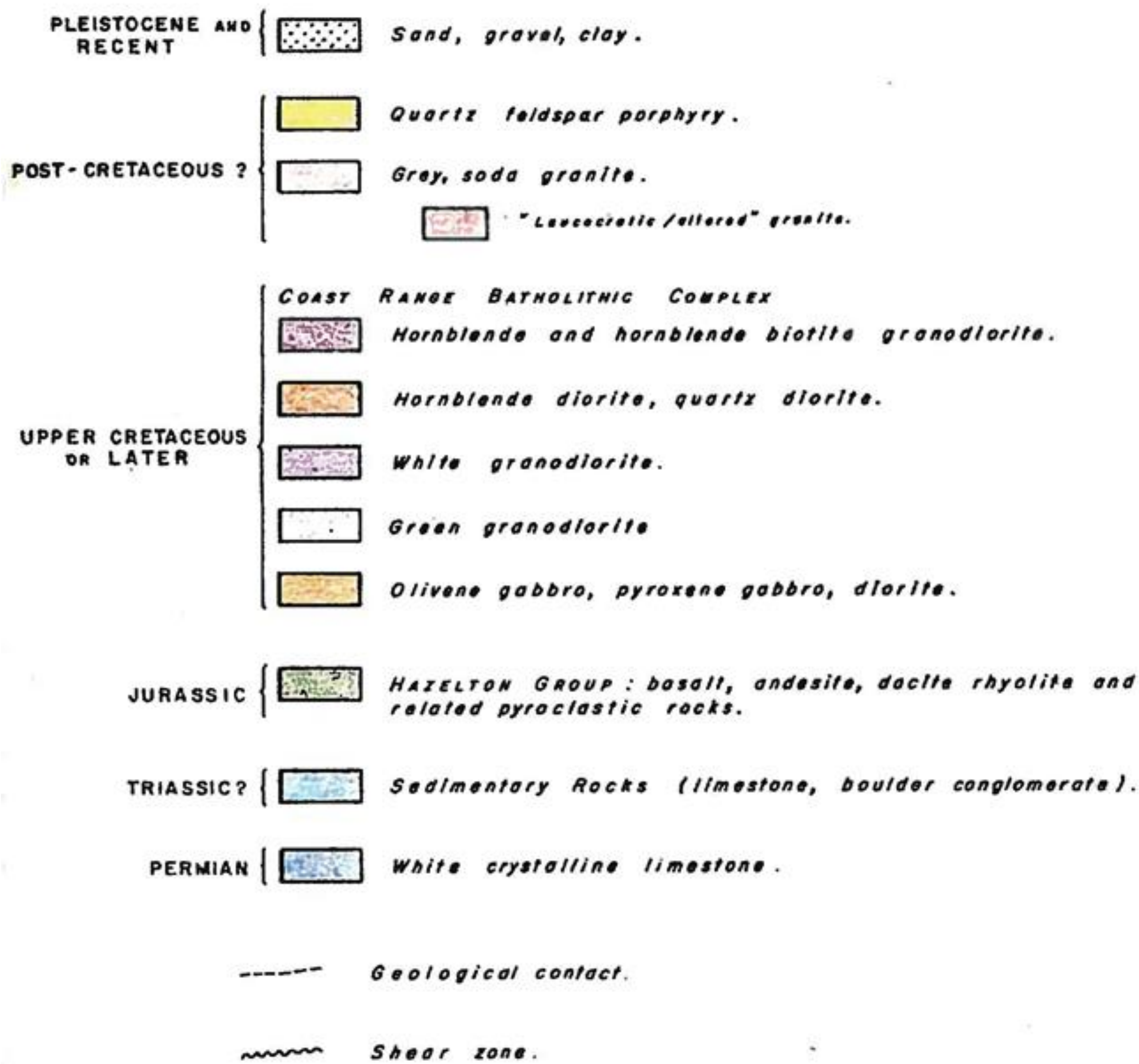
Ostler, 2016 noted that the AMAX geological mapping (Gambardella and Richardson, 1967) was very close to what he saw in his traverses.



Source: Gambardella and Richardson, 1967

Figure 14 Local Geology as defined in 1967 after detailed field mapping by Southwest Potash (AMAX)

The shape of the Telkwa Formation (green and identified in 1967 only as the Hazelton Group in Figure 14 and Figure 15) more closely represents the shape seen locally on the ground at Mantle by the author than in Figure 13 which is based on more widely spaced regional mapping.



Source: Gambardella and Richardson, 1967 as reproduced in Ostler, 2019

Figure 15 Legend of 1967 Local Geology map on the previous page

7.3 Local Mineralization

There are two British Columbia MINFILE mineral occurrences in the Mantle property area: MINFILE No. 103I 103 and No. 103I 109 which describe the mineralized quartz vein stockworks exposed on Gossan and Mantle creeks respectively. The published locations of both of these MINFILE occurrences are accurate.

Molybdenum was the focus of interest during the 1965-6 AMAX exploration program. Although copper-bearing minerals were present in most of the significant mineral showings, it seems to have been considered of minor importance. Mineralization in the current Mantle property area was described by Gambardella and Richardson, 1967 as follows:

"Sulphide Mineralization

General Statement

The following sulphides in order of decreasing abundance have been observed: Pyrite, molybdenite, chalcopyrite. All three minerals occur mainly in narrow quartz veins and to a minor extent along dry fractures and as fine disseminations.

Pyrite is generally present in amounts of less than 1% but is very widespread. It occurs either alone or in association with molybdenite and chalcopyrite in quartz veins, and is present in accessory amounts in most igneous rocks.

Chalcopyrite has been observed in quartz veins, commonly associated with molybdenite and pyrite.

Molybdenum Mineralization

Distribution

Known molybdenum mineralization is exposed in Gossan and Mantle creeks, two of the three major creeks draining the property. In Gossan Creek, low grade MoS_2 is exposed over a horizontal distance of 2,500 feet (762 m) and through a vertical distance of 1,500 feet (457 m). Surface mapping and geochemical sampling indicate that the northern boundary of the zone is defined by Gossan Creek. However, its east-west and southern extensions remain undefined because of the continuous overburden in those areas (…).

In Mantle Creek, molybdenite is exposed discontinuously over a horizontal distance of 2,000 feet (610 m) along the narrow creek bed and through a height of 1,000 feet (305 m). The molybdenum mineralization is open in both directions at right angles to the creek (…).

Mode of Occurrence

Molybdenum mineralization occurs as the sulphide MoS_2. No molybdenum oxides were recognized on the property. The molybdenite is characteristically fine-grained and occurs as sporadic disseminations along the margins of quartz veins, and to a minor extent on dry fracture surfaces, and as fine disseminations.

Quartz-veins and Quartz-vein Stockworks

In both mineralized areas, molybdenite-bearing quartz-veins range from less than 1/16" to 1/4" (1.6 mm to 6.4 mm). MoS_2 is restricted almost entirely to the margins of the veins. In Gossan Creek, three weakly mineralized stockworks, ranging in width from 50 to 150 feet (15 to 46 m) were defined. The stockworks are all contained within the granitic quartz-feldspar porphyry. The vein intensity ranges from 6 to 12 veins per square foot (71 to 141 veins /m2), but generally less than 50% of the veins are mineralized. Single, widely spaced quartz-MoS_2 veins occur in the intervening areas. In both stockwork and single veins, the distribution of MoS_2 along the strike is erratic, and frequently, MoS_2-bearing veins become barren within a few inches. Occasional randomly oriented quartz-MoS_2 veins were noted in the volcanic rocks and in the grey feldspar porphyry where they come in contact with the quartz-feldspar porphyry.

In Mantle Creek, three areas of quartz-vein stockwork were outlined. Their dimensions vary from 100 to 150 feet (30 to 46 m), and they all occur in soda granite (quartz monzonite). The vein intensity ranges from 4 to 12 veins per square foot (50 to 140 veins /m^2).

As in Gossan Creek, less than 50% of the veins are mineralized and each vein shows erratic MoS_2 content. The areas between the stockworks are characterized by barren stretches of up to 50 feet (15 m) with occasional single MoS_2-bearing quartz veins.

Dry Fractures

Molybdenite occurring as smears on dry fractures is relatively rare and of minor importance in both mineralized zones. Upon close inspection, many of the dry fractures reveal a thin coating of quartz. It is therefore, likely that many, if not all of the so-called dry fractures are really fine molybdenite-bearing quartz veins.

Disseminations

Disseminated MoS_2 is generally absent in both mineralized zones. In Gossan Creek, finely disseminated MoS_2 was noted at one locality in the granitic quartz-feldspar porphyry, and in Mantle Creek, coarsely disseminated MoS_2 was found along a three inch (7.6 cm) wide zone of intensely K-feldspathized soda granite (quartz monzonite). A fragment of float of similar K-feldspathized rock that assayed 0.33% MoS_2. The source of this float was traced to an inaccessible cliff at the head of Gash Creek (see Cover Photo 1), a southerly flowing tributary of Mantle Creek."

The programs that followed the 1966 survey were not as detailed and did not document significant further details on mineralization. Ostler, 2016 summarized:

"During the author's current (2016) investigation, Gambardella and Richardson's, 1967 description of copper and molybdenum mineralization to be quite accurate. At Gossan Creek, potassic 'A'-type veins in the quartz-feldspar porphyry have sparse, very fine-grained (<1 mm) pyrite, chalcopyrite, and molybdenite mineralization. Mineralization seems to be most common adjacent to north-south trending shears.

No copper or molybdenum mineralization was observed at Lamp Creek. At Mantle Creek, mineralization comprising mostly molybdenite occurred both in the margins of quartz-potassium feldspar ('B'-type) veins and in the soda granite matrix. There, very fine-grained molybdenite was accompanied with sparse pyrite and chalcopyrite mineralization. More molybdenite mineralization was observed at Mantle Creek than it was at Gossan Creek."

Geoscience BC in 2010 reanalysed the stream sediment samples in a large area of northern BC using ICP-MS for the historic samples (Geoscience BC, 2010a & 2010b). These maps include samples collected on Gossan and Lamp Creeks. Gossan Creek has highly anomalous values (>95th percentile) for both copper (193.96 ppm) and molybdenum (32.16 ppm). Lamp Creek is anomalous (>90th percentile) for both copper (65.59 ppm) and molybdenum (3.13 ppm). The analytical results were sourced on BC MapPlace. Those rsults confirm the hydrothermal system at the Mantle property is mineralized. The other creeks on the Mantle property were not analysed.

8 DEPOSIT TYPES

The following is sourced from Panteleyev, 1995. The mineral exploration target on the Mantle property is a calcalkalic porphyry copper and molybdenum deposit.

IDENTIFICATION

SYNONYM: Calcalkaline porphyry Cu, Cu-Mo, Cu-Au.

COMMODITIES (BYPRODUCTS): Cu, Mo and Au are generally present but quantities range from insufficient for economic recovery to major ore constituents. Minor Ag in most deposits; rare recovery of Re from Island Copper mine.

EXAMPLES (British Columbia - Canada/International):

Volcanic type deposits (Cu + Au * Mo) - Fish Lake, Kemess, Hushamu, Red Dog, Poison Mountain, Bell, Morrison, Island Copper; Dos Pobres (USA); Far Southeast (Lepanto/Mankayan), Dizon, Guianaong, Taysan and Santo Thomas II (Philippines), Frieda River and Panguna (Papua New Guinea).

Classic deposits (Cu + Mo * Au) - Brenda, Berg, Huckleberrry, Schaft Creek; Casino (Yukon, Canada), Inspiration, Morenci, Ray, Sierrita-Experanza, Twin Buttes, Kalamazoo and Santa Rita (Arizona, USA), Bingham (Utah, USA), El Salvador, (Chile), Bajo de la Alumbrera (Argentina).

Plutonic deposits (Cu * Mo) - Highland Valley Copper, Gibraltar, Catface; Chuquicamata, La Escondida and Quebrada Blanca, (Chile).

GEOLOGICAL CHARACTERISTICS

CAPSULE DESCRIPTION: Stockworks of quartz veinlets, quartz veins, closely spaced fractures and breccias containing pyrite and chalcopyrite with lesser molybdenite, bornite and magnetite occur in large zones of economically bulk-mineable mineralization in or adjoining porphyritic intrusions and related breccia bodies. Disseminated sulphide minerals are present, generally in subordinate amounts. The mineralization is spatially, temporally and genetically associated with hydrothermal alteration of the host rock intrusions and wallrocks.

TECTONIC SETTINGS: In orogenic belts at convergent plate boundaries, commonly linked to subduction-related magmatism. Also in association with emplacement of high-level stocks during extensional tectonism related to strike-slip faulting and back-arc spreading following continent margin accretion.

DEPOSITIONAL ENVIRONMENT / GEOLOGICAL SETTING: High-level (epizonal) stock emplacement levels in volcano-plutonic arcs, commonly oceanic volcanic island and continent margin arcs. Virtually any type of country rock can be mineralized, but commonly the high-level stocks and related dikes intrude their coeval and cogenetic volcanic piles.

AGE OF MINERALIZATION: Two main periods in the Canadian Cordillera: the Triassic/Jurassic (210-180 Ma) and Cretaceous/Tertiary (85-45 Ma). Elsewhere deposits are mainly Tertiary, but range from Archean to Quaternary.

HOST/ASSOCIATED ROCK TYPES: Intrusions range from coarse-grained phaneritic to porphyritic stocks, batholiths and dike swarms; rarely pegmatitic. Compositions range from calcalkaline quartz diorite to granodiorite and quartz monzonite. Commonly there is multiple emplacement of successive intrusive phases and a wide variety of breccias. Alkalic porphyry Cu- Au deposits are associated with syenitic and other alkalic rocks and are considered to be a a distinct deposit type (see model L03).

DEPOSIT FORM: Large zones of hydrothermally altered rock contain quartz veins and stockworks, sulphide-bearing veinlets; fractures and lesser disseminations in areas up to 10 km2 in size, commonly coincident wholly or in part with hydrothermal or intrusion breccias and dike swarms. Deposit boundaries are determined by economic factors that outline ore zones within larger areas of low-grade, concentrically zoned mineralization. Cordilleran deposits are commonly subdivided according to their morphology into three classes - classic, volcanic and plutonic (see Sutherland Brown, 1976; McMillan and Panteleyev, 1988):

* **Volcanic type deposits** (e.g. Island Copper) are associated with multiple intrusions in subvolcanic settings of small stocks, sills, dikes and diverse types of intrusive breccias. Reconstruction of volcanic landforms, structures, vent-proximal extrusive deposits and subvolcanic intrusive centres is possible in many cases, or can be inferred. Mineralization at depths of 1 km, or less, is mainly associated with breccia development or as lithologically controlled preferential replacement in host rocks with high primary permeability. Propylitic alteration is widespread and generally flanks early, centrally located potassic alteration; the latter is commonly well mineralized. Younger mineralized phyllic alteration commonly overprints the early mineralization. Barren advanced argillic alteration is rarely present as a late, high-level hydrothermal carapace.

* **Classic deposits** (e.g., Berg) are stock related with multiple emplacements at shallow depth (1 to 2 km) of generally equant, cylindrical porphyritic intrusions. Numerous dikes and breccias of pre, intra, and post-mineralization age modify the stock geometry. Orebodies occur along margins and adjacent to intrusions as annular ore shells. Lateral outward zoning of alteration and sulphide minerals from a weakly mineralized potassic/propylitic core is usual. Surrounding ore zones with potassic (commonly biotite-rich) or phyllic alteration contain molybdenite * chalcopyrite, then chalcopyrite and a generally widespread propylitic, barren pyritic aureole or 'halo'.

* **Plutonic deposits**

(e.g., the Highland Valley deposits) are found in large plutonic to batholithic intrusions immobilized at relatively deep levels, say 2 to 4 km. Related dikes and intrusive breccia bodies can be emplaced at shallower levels. Host rocks are phaneritic coarse grained to porphyritic. The intrusions can display internal compositional differences as a result of differentiation with gradational to sharp boundaries between the different phases of magma emplacement. Local swarms of dikes, many with associated breccias, and fault zones are sites of mineralization. Orebodies around silicified alteration zones tend to occur as diffuse vein stockworks carrying chalcopyrite, bornite and minor pyrite in intensely fractured rocks but, overall, sulphide minerals are sparse. Much of the early potassic and phyllic alteration in central parts of orebodies is restricted to the margins of mineralized fractures as selvages. Later phyllic argillic alteration forms envelopes on the veins and fractures and is more pervasive and widespread. Propylitic alteration is widespread but unobtrusive and is indicated by the presence of rare pyrite with chloritized mafic minerals, saussuritized plagioclase and small amounts of epidote.

TEXTURE/STRUCTURE: Quartz, quartz-sulphide and sulphide veinlets and stockworks; sulphide grains in fractures and fracture selvages. Minor disseminated sulphides commonly replacing primary mafic minerals. Quartz phenocrysts can be partially resorbed and overgrown by silica.

ORE MINERALOGY (Principal and subordinate): Pyrite is the predominant sulphide mineral; in some deposits the Fe oxide minerals magnetite, and rarely hematite, are abundant. Ore minerals are chalcopyrite; molybdenite, lesser bornite and rare (primary) chalcocite. Subordinate minerals are tetrahedrite/tennantite, enargite and minor gold , electrum and arsenopyrite. In many deposits late veins commonly contain galena and sphalerite in a gangue of quartz, calcite and barite.

GANGUE MINERALOGY (Principal and subordinate): Gangue minerals in mineralized veins are mainly quartz with lesser biotite, sericite, K-feldspar, magnetite, chlorite, calcite, epidote, anhydrite and tourmaline. Many of these minerals are also pervasive alteration products of primary igneous mineral grains.

ALTERATION MINERALOGY: Quartz, sericite, biotite, K-feldspar, albite, anhydrite/gypsum, magnetite, actinolite, chlorite, epidote, calcite, clay minerals, tourmaline. Early formed alteration can be overprinted by younger assemblages. Central and early formed potassic zones (K-feldspar and biotite) commonly coincide with ore. This alteration can be flanked in volcanic host rocks by biotite-rich rocks that grade outward into propylitic rocks. The biotite is a fine-grained, 'shreddy' looking secondary mineral that is commonly referred to as an early developed biotite (EDB) or a 'biotite hornfels'. These older alteration assemblages in cupriferous zones can be partially to completely overprinted by later biotite and K-feldspar and then phyllic (quartz-sericite-pyrite) alteration, less commonly argillic, and rarely, in the uppermost parts of some ore deposits, advanced argillic alteration (kaolinite-pyrophyllite).

WEATHERING: Secondary (supergene) zones carry chalcocite, covellite and other Cu*2S minerals (digenite, djurleite, etc.), chrysocolla, native copper and copper oxide, carbonate and sulphate minerals. Oxidized and leached zones at surface are marked by ferruginous 'cappings' with supergene clay minerals, limonite (goethite, hematite and jarosite) and residual quartz.

ORE CONTROLS: Igneous contacts, both internal between intrusive phases and external with wallrocks; cupolas and the uppermost, bifurcating parts of stocks, dike swarms. Breccias, mainly early formed intrusive and hydrothermal types. Zones of most intensely developed fracturing give rise to ore-grade vein stockworks, notably where there are coincident or intersecting multiple mineralized fracture sets.

ASSOCIATED DEPOSIT TYPES: Skarn Cu, porphyry Au, epithermal Au-Ag in low sulphidation type (H05) or epithermal Cu-Au-Ag as high-sulphidation type enargite-bearing veins, replacements and stockworks; auriferous and polymetallic base metal quartz and quartz carbonate veins, Au-Ag and base metal sulphide mantos and replacements in carbonate and non- carbonate rocks, placer Au.

COMMENTS: Subdivision of porphyry copper deposits can be made on the basis of metal content, mainly ratios between Cu, Mo and Au. This is a purely arbitrary, economically based criterion, an artifact of mainly metal prices and metallurgy. There are few differences in the style of mineralization between deposits although the morphology of calcalkaline deposits does provide a basis for subdivision into three distinct subtypes - the 'volcanic, classic, and plutonic' types. A fundamental contrast can be made on the compositional differences between calcalkaline quartz bearing porphyry copper deposits and the alkalic (silica undersaturated) class. The alkalic porphyry copper deposits are described in a separate model - L03.

EXPLORATION GUIDES

GEOCHEMICAL SIGNATURE: Calcalkalic systems can be zoned with a cupriferous (* Mo) ore zone having a 'barren', low-grade pyritic core and surrounded by a pyritic halo with peripheral base and precious metal-bearing veins. Central zones with Cu commonly have coincident Mo, Au and Ag with possibly Bi, W, B and Sr. Peripheral enrichment in Pb, Zn, Mn, V, Sb, As, Se, Te, Co, Ba, Rb and possibly Hg is documented. Overall the deposits are large-scale repositories of sulphur, mainly in the form of metal sulphides, chiefly pyrite.

GEOPHYSICAL SIGNATURE: Ore zones, particularly those with higher Au content, can be associated with magnetite-rich rocks and are indicated by magnetic surveys. Alternatively, the more intensely hydrothermally altered rocks, particularly those with quartz-pyrite-sericite (phyllic) alteration produce magnetic and resistivity lows. Pyritic haloes surrounding cupriferous rocks respond well to induced polarization (I.P.) surveys but in sulphide-poor systems the ore itself provides the only significant IP response.

OTHER EXPLORATION GUIDES: Porphyry deposits are marked by large-scale, zoned metal and alteration assemblages. Ore zones can form within certain intrusive phases and breccias or are present as vertical 'shells' or mineralized cupolas around particular intrusive bodies. Weathering can produce a pronounced vertical zonation with an oxidized, limonitic leached zone at surface (leached capping), an underlying zone with copper enrichment (supergene zone with secondary copper minerals) and at depth a zone of primary mineralization (the hypogene zone).

ECONOMIC FACTORS

TYPICAL GRADE AND TONNAGE:

Worldwide according Cox and Singer (1988) based on their subdivision of 55 deposits into subtypes according to metal ratios, typical porphyry Cu deposits contain (median values):

- Porphyry Cu-Au: 160 Mt with 0.55 % Cu, 0.003 % Mo, 0.38 g/t Au and 1.7 g/t Ag.
- Porphyry Cu-Au-Mo: 390 Mt with 0.48 % Cu, 0.015 % Mo, 0.15 g/t Au and 1.6 g/t Ag.
- Porphyry Cu-Mo: 500 Mt with 0.41 % Cu, 0.016 % Mo, 0.012 g/t Au and 1.22 g/t Ag.

A similar subdivision by Cox (1986) using a larger data base results in:

- Porphyry Cu: 140 Mt with 0.54 %Cu, <0.002 % Mo, <0.02g/t Au and <1 g/t Ag.
- Porphyry Cu-Au: 100 Mt with 0.5 %Cu, <0.002 % Mo, 0.38g/t Au and 1g/t Ag. (This includes deposits from the British Columbia alkalic porphyry class, B.C. model L03.)
- Porphyry Cu-Mo: 500 Mt with 0.42 % Cu, 0.016 % Mo, 0.012 g/t Au and 1.2 g/t Ag.

British Columbia porphyry Cu * Mo ± Au deposits range from <50 to >900 Mt with commonly 0.2 to 0.5 % Cu, <0.1 to 0.6 g/t Au, and 1 to 3 g/t Ag. Mo contents are variable from negligible to 0.04 % Mo. Median values for 40 B.C. deposits with reported reserves are: 115 Mt with 0.37 % Cu, *0.01 % Mo, 0.3g /t Au and 1.3 g/t Ag.

ECONOMIC LIMITATIONS: Mine production in British Columbia is from primary (hypogene) ores. Rare exceptions are Afton mine where native copper was recovered from an oxide zone, and Gibraltar and Bell mines where incipient supergene enrichment has provided some economic benefits.

END USES: Porphyry copper deposits produce Cu and Mo concentrates, mainly for international export.

IMPORTANCE: Porphyry deposits contain the largest reserves of Cu, significant Mo resources and close to 50 % of Au reserves in British Columbia.

9 EXPLORATION

High Point Exploration Inc. has done no work on the property to date.

10 DRILLING

There is no record of historic drilling on the Mantle property. The Company has done no drilling on the Mantle property.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

The Company has done no rock, soil or silt collection or analysis.

Zenith Exploration Inc. completed data collection during the airborne geophysical surveys that included a number of quality control checks including base station units and data cross over lines. These checks and data confirmations by Precision GeoSurveys are described in section 9 of this report, and the Precision GeoSurveys, 2018 report.

There have been multiple historic programs that have included soil and rock analysis, although none have been of a quantitative nature such as a diamond drill program or systematic trench sampling program, all appear to meet the industry standards at the time of collection and analyses.

Based on this lack of analyses by the Company the author cannot comment on the adequacy of past (1960s through 1980s) sampling but he confirms it was by reputable companies and mining professionals and was completed to industry standards at the time of the work. The author recommends future programs to be completed to present industry standards of Quality Control and Quality Assurance, sample security and include a systematic insertion of Standards and Blanks. The work by the Company using airborne geophysics meets industry standards for preparation and data processing.

12 DATA VERIFICATION

The current QP Personal Visit in October, 2018 was timed to be on site before the winter snow arrived. This occurred before the airborne geophysical surveys. The Inspection is described in more detail in section 2.3 of this report.

The author completed a detailed data search for and review of the historic exploration reports and government geological data that is publicly available as well as data provided by the original property vendor, John Ostler. This is summarized on the Reference section of this report.

The author was not present for the airborne geophysical surveys in December, 2018 when it was reported that about 60 centimetres of snow-covered higher areas and that there was little or no snow cover at the lowest areas on the property. During the December, 2018 airborne surveys, data was collected solely from a helicopter over the property and no landings in the claim block or changes to the site occurred during the surveys. The 2018 report by Precision GeoSurveys outlined a series of data checks including ground base magnetometers, cross lines and data reviews.

For a project at this stage of development the existing data procedures are relevant and adequate for the present programs.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

This is an early stage project and there has been no mineral or metallurgical testing to date.

14 MINERAL RESOURCE ESTIMATES

This is an early stage project and no Mineral Resources are calculated. There has been no drilling or mining on the Mantle property and there are no historic resource estimates.

15 MINERAL RESERVE ESTIMATES

This is an early stage project and no Mineral Reserves are calculated.

16 MINING METHODS

This is an early stage project and this section is not part of this report.

17 RECOVERY METHODS

This is an early stage project and this section is not part of this report.

18 PROJECT INFRASTRUCTURE

This is an early stage project and this section is not part of this report.

19 MARKET STUDIES AND CONTRACTS

This is an early stage project and this section is not part of this report.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

This is an early stage project and this section is not part of this report.

21 CAPITAL AND OPERATING COSTS

This is an early stage project and this section is not part of this report.

22 ECONOMIC ANALYSIS

This is an early stage project and this section is not part of this report.

23 ADJACENT PROPERTIES

There are no adjacent properties. The HALF VAST low F-type porphyry molybdenum showing is located about 1.5 kilometres south of Mantle in the Hirsch Creek valley. The molybdenum occurs in narrow selvages and veinlets related to dykes in the Coast Intrusive Complex rocks. There is also a high purity (up to 99.5%) silica vein on the HALF VAST. The recent exploration has targeted the silica vein zone. Access is by gravel logging road from Kitimat. Summaries of the history and geological details are found in MINFILES 103i 110 (HALF VAST) and 103i 111 (SIL).

24 OTHER RELEVANT DATA AND INFORMATION

There is no relevant information known to the author not disclosed in this report.

25 INTERPRETATION AND CONCLUSIONS

Previous field exploration, local and regional geological mapping, the airborne magnetic and radiometric surveys, regional stream sediment results and the author's visual confirmation from the helicopter and on the ground confirm a hydrothermal alteration system of significant areal extent at the Mantle property.

The Mantle property has a history of detailed field work during the mid-1960s. The geochemical techniques used at that time had limited capability. Few elements were analysed and provided high analytical thresholds indicated a mineralized system. Since then, there has been a large amount of research and further definition of porphyry molybdenum deposits. Advances in general deposit knowledge, technology and access options will present a better targeting opportunity on the Mantle property.

The 2016 field mapping by Ostler has confirmed the information reported by Southwest Potash in the mid-1960s. Ostler, 2019 combined his field work with the recent airborne magnetic and radiometric survey results to get a better idea of the general underlying hydrothermal system. The airborne survey results revealed that the hydrothermal system extended north and west of the Mantle property, resulting in further claims being staked to cover this larger extent. The next step is to conduct more detailed field work over the Mantle hydrothermal system, incorporating the present understanding of porphyry copper and molybdenum deposits.

The work to date, particularly that of the last four years (Ostler, 2016 and 2019), has indicated the presence of extensive propylitic and phyllic alteration systems that require greater definition on the ground. The previous work and regional geochemical surveys have confirmed that copper and other related porphyry deposit elements are present.

The Mantle is a property worthy of further exploration to define the underlying mineralization.

26 RECOMMENDATIONS

There is a long history of work on this property, particularly in the mid-1960s and mid-1980s, but very little is modern. Ostler, 2016 and 2019 used modern methodologies but conducted limited field work. The results of the airborne geophysical surveys have outlined target areas in which to concentrate subsequent surface exploration.

The recommended first phase of exploration comprises surface geological mapping of the property along with a multi-element soil geochemical survey. This should be focused on the areas highlighted in Ostler, 2019 near both Gossan and Lamp Creeks and the lower slopes near Mantle and South Creeks. The soil sample analyses should use multi-element ICP-MS. This is estimated to cost about $150,000.

Table 7 Recommended Exploration Budget

Activity	# of Units	Unit Cost	Item Cost
Phase 1			
Soil sampling collection (days*2 staff)	25	$ 1,000	$25,000
Geological mapping (days)	25	$ 700	$17,500
Mobilzation/Demobiliation/Resupply	1	$ 25,000	$25,000
Camp Costs (food, communication, accomodation, etc.)	1	$ 15,000	$15,000
Project Preparation and Reporting	1	$ 30,000	$30,000
Total			$112,500
Suggested budget with Continency			**$150,000**
Phase 2			
Line Cutting (kilometre)	10	$ 7,000	$70,000
Induced Polarization (kilometre)	10	$ 4,500	$45,000
Helicopter (hours)	30	$ 2,000	$60,000
Geologist (supervisoin and mapping)	25	$ 700	$17,500
Support Staff (days)	25	$ 500	$12,500
Camp Costs (food, communication, accomodation, etc.)	1	$ 25,000	$25,000
Project Preparation and Reporting	1	$ 35,000	$35,000
Total			$265,000
Suggested budget with Continency			**$300,000**

If Phase 1 is successful in confirming target areas, it is recommended that a Phase 2 program of Induced Polarization (IP) survey be conducted up the ravines of Gossan, Lamp and Mantle creeks and along the adjacent ridges to determine the major subsurface geological alteration and mineralogical trends. This technique responds well to the disseminated sulphide minerals that are a key target in porphyry mineral deposits. There should be about eight east-west lines spaced about 150 to 400 metres apart of about one-kilometre length each and one north-south line of about two-kilometres. Terrain will be one of the defining factors in line spacing and location.

Following these phases in exploration it should be possible to define drill targets.

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- **BC Mineral Deposits**
  - **http://www.empr.gov.bc.ca/Mining/Geoscience/MineralDepositProfiles/ListbyDepositGroup/Pages/LPorphyry.aspx#l05**

Weather:
http://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?searchType=stnProv&lstProvince=BC&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&stnID=441&dispBack=0