92 H/10W

4840

92H/IOW REPORT ON

CADET RESOURCES LTD

PROPERTY

BUCK CLAIM GROUP

TULAMEEN AREA, B.C.

SIMILKAMEEN MINING DIVISION

Department of Mines and Patroleum Resources ASSEDSMENT REPORT NO. 4840 MAP

December 27, 1973 Vancouver, B.C. W. G. Timmins, P.Eng., Consulting Geologist

W.G. TIMMINS & ASSOCIATES LTD

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SUMMARY

Cadet Resources Ltd has acquired a group of 52 contiguous mineral claims located eleven miles northwest of Tulameen, British Columbia on which it has carried out a detailed geological, electromagnetic and magnetometer survey. These are the Buck 1-52 claims.

The property is situated in a favourable geological environment underlain by igneous and volcanic rocks.

The work programme consisted of a detailed geological, electromagnetic and magnetometer survey and was directed towards delineating the possible mineralized zones underlying the property.

Due to an unseasonable heavy snowfall, a geochemical soil sampling survey could not be performed.

This detailed programme has outlined two areas which are significantly anomalous and in order to test these two areas, trenching and diamond drilling is recommended. The estimated cost of the programme is \$23,650.00 and further work will be dependent upon the results of this recommended programme.

INTRODUCTION

During the period of October 26th to November 23rd, 1973, a three-man crew employed by W. G. Timmins & Associates Ltd carried out a detailed geological, electromagnetic and magnetometer survey on the Buck 1, 3, 5, 7, 8, 11, 12, 17-22, 33, 35, 48, 50 and 52 claims.

Due to an unseasonal heavy snowfall, a geochemical soil sampling survey could not be performed, however, it was felt that an electromagnetic survey, using a VLF Ronka EM16 unit would be effective for purposes of delineating possible mineralized zones underlying the property.

PROPERTY, LOCATION AND ACCESS

The property consists of a contiguous group of 52 located mineral claims as described below:

Claim NameTag No.Buck 1~52 inclusive443322M - 443374M inclusive

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The claim group is located eleven miles northwest of Tulameen, British Columbia. The property isreached by way of the Lawless Creek forestry access road.

The approximate co-ordinates are 49° 38' N latitude, and 120° 53 'W longitude.

CLIMATE, TOPOGRAPHY AND LOCAL RESOURCES

The climate is on the fringes of the Interior Plateau and would be classed as dry belt interior.

There is a heavy snowfall in the winter, which lasts from November to April, and light rain with high temperatures in the summer.

The topography changes abruptly, from very precipitous canyons along the creek bed, to gentle rolling upland hills.

The area under discussion has been glaciated, with glacial debris in the form of moraines and terraced hillsides.

The vegetation varies considerably, with very thick bush in creek valleys to park-like on the rolling uplands. It consists of Ponderosa pine, Canada balsam, Interior fir, wild maple, huckleberry salal, buckbrush and devils club.

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Transportation and food supplies are available in Tulameen. Railroad highway and hydro facilities are found in the immediate area.

HISTORY

Mining, dating back to the mid-1860's and consisting of placer operations, has formed a very important part of the Tulameen area history.

As placer mining interest diminished, more consideration was given to lode mining, with the result that numerous lode showings were located.

The O'Henry and Cousin Jack group of claims are two well known properties discovered on Rabbit mountain.

These two properties are in close proximity to the Cadet Resources Buck property.

PRESENT ACTIVITY

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Considerable work has taken place in the area during the last field season. A number of major mining companies have conducted regional studies as well as detailed property

examinations. Many junior mining companies hold mineral claims in the area immediately adjacent to the Cadet Resources Buck 1-52 claims.

Gold River Mines Ltd have carried out considerable work in the form of geological surveys and diamond drilling. A number of major companies have shown interest in this property which lies just south of the Cadet Resources property. The property is known as the Cousin Jack group of claims.

REGIONAL GEOLOGY (G.S.C. Memoir 243, Map No. 889A Princeton Area)

The area lies on the western edge of the Interior Plateau and is underlain by igneous and volcanic rocks ranging in age from Upper Triassic to Upper Jurassic. The oldest group are the Nicola group volcanics intruded by Coast intrusives consisting of granites and quartz diorites.

PROPERTY GEOLOGY

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The property is underlain by granites, hydrothermally altered granites and basalts.

On the west side of the property, fresh granodiorite is fairly well exposed. Numerous calcite stringers occur within this fresh granodiorite and in some places pyrite is plentiful.

An assumed contact or fault is approximately 2000 feet to the east of these fresh granodiorites. It is at this point and continuing on for approximately 3500 feet that the rocks have undergone intensive deformation and alteration. The rocks in this area are albitized granodiorites, sericite, Pyrite is observed in some muscovite and talc schists. of the rock exposures. To the south of this altered zone in Unnamed Creek the rock exposure is very good. It is assumed that Unnamed Creek is an unhealed fault. In this creek the rocks have undergone considerable weathering. A large gossan, approximately 200 feet long by 10 feet wide, outcrops on the north bank of Unnamed Creek. The rock is an altered granodiorite with the occurrence of massive pyrite in places and 5-10% in other zones.

On the east and southeast sides of the assumed Unnamed Creek fault, there are very few rock exposures, but rocks examined are all basalt or porphyritic basalt.

MAGNETOMETER SURVEY - PROCEDURE

A grid, 300' x 200' was cut and flagged on Buck 1, 3, 5, 7, 8, 11, 12, 17-22, 33, 35, 48, 50 and 52 claims. A total of 35 miles of line was completed in these portions of the property.

Instrumentation consisted of a McPhar M700 Fluxgate magnetometer (see specifications in Appendix I), and the loop method of survey carried out. All readings were corrected for diurnal variance, plotted and contoured on a scale of 1" = 300 feet.

MAGNETOMETER SURVEY - RESULTS

Background for the property is in the order of 400 gammas with no variations for relief.

A magnetic low flanked by a number of anomalous highs occur along the trace of the altered intrusive-volcanic contact. Coincident with this anomalous zone is a mild cross-over in the electromagnetic survey. This could signify the assumed contact or a sulphide zone at depth.

Several anomalous high magnetic readings were encountered on claims 18, 20 and 22. These are several times above background and are coincident with moderate electromagnetic cross-overs. This wide zone may indicate a flat-lying sulphide body at depth.

ELECTROMAGNETIC SURVEY - PROCEDURE

Instrumentation consisted of a Ronka EM-16 VLF Electromagnetic unit, (see specification in Appendix II). This unit uses the military and time standard VLF transmissions as primary field. The military base at Seattle, Washington was used as a base station and lines were run in an east-west direction with starting positions on the west side of the grid and running east from that point.

The results obtained were plotted on a map, scale 1" = 300 feet and profiles derived from these values.

ELECTROMAGNETIC SURVEY - RESULTS

Several cross-overs were obtained from the electromagnetic survey. Some of the conductors are due to surfaces, such as swamps, creek beds and depressions, however two zones, where the electromagnetic cross-overs are coincidental with magnetic highs and lows of the magnetometer survey are very significantly expressed.

One of the conductors occurs over the assumed Coast Intrusivebasalt contact. The results as seen by the profiles (electromagnetic map) range from weak to moderately high. This may also indicate an eastward plunging mineralized sulphide body.

The other significant conductor occurs over claims 18, 20 and 22. This cross-over is coincident with two pronounced magnetic lows and highs. The cross-over which ranges from weak to strong has an easterly trend and appears to indicate a flat-lying body at depth. In addition, a previous reconniassance geochemical survey in this particular area indicated a number of anomalous copper assays.

CONCLUSIONS AND RECOMMENDATIONS

Cadet Resources Ltd has completed a detailed geological, magnetometer and electromagnetic survey over the Buck 1, 3, 5, 7, 8, 11, 12, 17-22, 33, 35, 48, 50 and 52 claims.

This detailed programme has outlined two areas which are significantly anomalous. In order to test these two areas, trenching and diamond drilling should be utilized.

The contact area in the vicinity of the magnetic low and EM conductor near the north-west corner of claim 52 and the anomalous zone outlined on the western boundary of claim 20 should be further tested by a preliminary trenching and diamond drilling programme.

ESTIMATED COST OF PROGRAMME

Trenching and sampling (estimated) \$ 4,000.00 Diamond drilling, estimated 1500' @ \$10/foot in four holes 15,000.00 Supervision, transportation, communications, reports etc., 2,500.00

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Contingency @ 10%

\$ 2,150.00

TOTAL ESTIMATED COST

\$23,650.00

Further work will be dependent upon results of the above recommended programme.

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Respectfully submitted, W.G. TIMMINS & ASSOCIATES LTD.,

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W. G. Timmins, P.Eng., Consulting Geologist

December 27, 1973

Vancouver, B.C.

CERTIFICATE

I, WILLIAM G. TIMMINS, an associate of W.G. Timmins & Associates Ltd., with offices at 307-475 Howe Street, Vancouver, British Columbia, do hereby certify that:

- 1. I am a geologist having been practising my profession continuously for twelve years.
- I am a graduate of the Provincial Institute of Mining, Haileybury, Ontario and have attended Michigan Technological University, Houghton, Michigan.
- 3. I am a member of the Association of Professional Engineers of British Columbia.
- I have no interest, direct or indirect in the property or securities of Cadet Resources Ltd., nor do I expect to receive any such interest.
- 5. This report has been prepared by myself and is based upon supervision of the programme, from a study of available data from government reports and other publications, and from the writer's personal knowledge of the area.
- 6. This report may be used in the Prospectus of the Company and amendments thereto.

Dated at Vancouver, British Columbia, this 27th day

of December, 1973.

W.M.

W. G. Timmins, P.Eng., Consulting Geologist

APPENDIX I

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W.G.TIMMINS & ASSOCIATES LTD

SECTION 2

SPECIFICATIONS

2-1 MAXIMUM SENSITIVITY

S gammet per scale division on 1,000 (20mg range).

soldability in 1/4 scale division or 5 jummas.

2-2 MAXIMUM MEASUREMENT

ero to ± 100,000 gammas in five ranges.

| Range Switch Position | Fuil Scole In Gammas | Gammos Per Scole Division |
|--------------------------|-------------------------|------------------------------|
| 16 | 1,000 | 20 black scale |
| 34 | 3,000 | 50 red scale |
| 10K | 10,000 | 200 black scale |
| 30N | 30,000 | 500 red scale |
| 100K | 100,000 | 2,000 black scale |

2-3 MEASUREMENT POLARITY

The above ranges can be reversed in polarity as a simple function of the Polarity switch.

2-4 LATITUDE ADJUSTMENT

The latitude adjustment permits cancelling two earth's field up to a magnitude of \pm 100,000 gammas. The adjustment control is a ter revolution precision potentiometer schated wher the sliding side panel. A postive type backing lever on the control renoves we magnet of accidentally dislodging the setting.

2-5 SELF-LEVELLING SENSING HEAD

The unique self-levelling sensing head of this magnetometer is inserted as a plug-in unit. It is easily detached so that the same magnetometer can be used with other types of sensing neads such as the airborne gyro stabilited mead etc.

1 is recommended that the instrument be re-calibrated at our servicing depot, each one the servicing head is changed.

2-6 ORIENTATION ERROR

Elefon status error is set at the factory to 25 gai max or less in the presence of a 15,000 gamma horizontal field. It is possible to adjust the orientation error and the procedure is explained in the section 9-2 under Maintenance.

2-7 TEMPERATURE STABILITY

Over the temperature range of -35 to +55 degrees centigrade the temperature drift is limited to less than 50 gammas. See section 4-6 on Minimizing Temperature Drift.

2-8 BATTERY SUPPLY

The M700 Magnetonieter is powered by two internally mounted 9 volt batteries. Any pair of the following batteries may be used.

> Eveready No. 276 Mallery No. M1603 Burgess No. D6 R. C. A. No. VS306

For sub-zero operation the batteries may be transferred to an external battery case and carried under clothing to keep them from freezing. See section 6, Operation with External Batteries.

Two types of extra characty is are available see accessory list section 11. One type is to the above the error section the type of case will accommodate the equivalent in flashlight cells for use in countries, where the normal batteries are a tricult to obtain.

2-9 ACCESSORY RECEPTACLE

A Cannon receptable is located in the side of the instrument under the slide council. This increases the versatility of the instrument so it can be used in a number of ways in addition to its normal vertice field ground magnetometer function. See Sition 8, under Extended Applications and section 11, under Accessories.

2-10 ACCESSORY & LATITUDE SWITCH

which is a double function switch. The first tunction is to permit oper the north or south of the equator by simply usinging one step APPENDIX II

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VLF Electromagnetic Unit

Pioneered and patented exclusively by Geonics Limited, the VLF method of electromagnetic surveying has been proven to be a major advance in exploration geophysical instrumentation.

Since the beginning of 1965 a large number of mining companies have found the EM16 system to meet the need for a simple, light and effective exploration tool for mining geophysics.

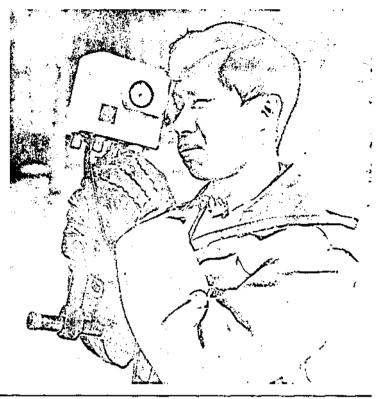
The VLF method uses the military and time standard VLF transmissions as primary field. Only a receiver is then used to measure the secondary fields radiating from the local conductive targets. This allows a very light, one-man instrument to do the job. Because of the almost uniform primary field, good response from deeper targets is obtained.

The EM16 system provides the *in-phase* and *quadrature* components of the secondary field with the polarities indicated.

Interpretation technique has been highly developed particularly to differentiate deeper targets from the many surface indications.

Principle of Operation

The VLF transmitters have vertical antennas. The magnetic signal component is then horizontal and concentric around the transmitter location.



Specifications

| Source of primary field | VLF transmitting stations. | Reading time | 10-40 seconds depending on signal strength. |
|----------------------------|--|-----------------------------|--|
| Transmitting stations used | Any desired station frequency can be supplied with the instrument in the form of plug-in tuning units. Two | Operating temperature range | -40 to 50° C. |
| | tuning units can be plugged in at one time. A switch selects either station. | Operating controls | ON-OFF switch, battery testing push button, station selector, switch, |
| Operating frequency range | About 15-25 kHz. | | volume control, quadrature, dial \pm 40%, inclinometer dial \pm 150%. |
| Parameters measured | (1) The vertical in-phase component (langent of the tilt angle of the polarization ellipsoid). | Power Supply | 6 size AA (penlight) alkaline cells. Life about 200 hours. |
| | (2) The vertical out-of-phase (quadra- ture) component (the short axis of the | Dimensions | 42 x 14 x 9 cm (16 x 5.5 x 3.5 in.) |
| | polarization ellipsoid compared to the long axis). | Weight | 1.6 kg (3.5 lbs.) |
| Method of reading | In-phase from a mechanical inclino- meter and quadrature from a calibrated dial. Nulling by audio tone. | Instrument supplied with | Monotonic speaker, carrying case, manual of operation, 3 station selector plug-in tuning units (additional fre- quencies are optional), set of batteries. |
| Scale range | In-phase \pm 150%; guadrature \pm 40%. | Shipping weight | 4.5 kg (10 ibs.) |
| Readability | ±1%. | | |



GEONICS LIMITED

Designers & manufacturers of geophysical instruments

subsidiary of Deering Milliken Inc. 2 Thorncliffe Park Drive, Toronto/Ontario/Canada M4H 1H2 Tel: 425-1824 Cables: Geonics

REPORT ON

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CADET RESOURCES LTD

PROPERTY

BUCK CLAIM GROUP TULAMEEN AREA, B.C. SIMILKAMEEN MINING DIVISION

August 1, 1973 Vancouver, B.C.

W.G. Timmins, P.Eng., Consulting Geologist

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MAPS

| MAPS | Scale |
|---------------------------------------|---------------|
| #4GEOLOGICAL-GEOPHYSICAL MAP - Cu ppm | 1" = 500 feet |
| #5 magnetometer survey | 1" = 500 feet |

SUMMARY

Cadet Resources Ltd has acquired a group of 52 contiguous mineral claims located about eleven miles northeast of Tulameen, British Columbia.

The property is situated in a favourable geological environment underlain by igneous and volcanic rocks.

A preliminary geological, geophysical and geochemical survey has revealed several anomalous zones which require further detailed investigation.

A programme consisting of further geological, geophysical and geochemical surveys is recommended to a total estimated cost of \$18,360.00.

INTRODUCTION

During the month of June, 1973 a three-man crew employed by W. G. Timmins & Associates Ltd carried out a preliminary reconnaissance geological, geochemical soil sampling and magnetometer survey on the Buck claim group held by Cadet Resources Ltd of Vancouver, B.C.

PROPERTY, LOCATION AND ACCESS

The property consists of a contiguous group of 52 located mineral claims as described below:

| <u>Claim Name</u> | Tag No. |
|-------------------|-----------------------------|
| Buck 1 - 52 incl. | 443322M - 443374M inclusive |

The claim group is located about eleven miles northwest of Tulameen, British Columbia, approximate co-ordinates 49⁰ 38' N, latitude 120⁰ 58'W longitude.

The property is accessible from Tulameen by means of logging roads from the Lawless Creek road.

<u>REGIONAL GEOLOGY</u> (Ref: G.S.C. Map No. 889A Princeton Area) The area lies on the western edge of the Interior Plateau and is underlain by igneous, volcanic and metamorphic rocks ranging in age from Upper Triassic to Upper Jurassic. The oldest rocks are the Nicola Group Volcanices intruded by Coast intrusives consisting of granites and granodiorite.

GEOLOGY OF THE PROPERTY

Several thin sections were taken for rock identification. (See Appendix A). The eastern portion of the property is underlain by basaltic type rocks consisting of basalt, amygdaloidal basalt and porphyritic basalt. The average strike and dip is $N40^{\circ}E$, and $60^{\circ}N$.

A major fault trending in a northeasterly direction was mapped.

Metamorphosed intrusive rocks occur to the west of the volcanics and in the vicinity of the fault vary from sericite-muscovite schist to granodiorite with muscovite altered to talc.

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Relatively fresh quartz monzonite underlies the western portion of the property, in places laced with quartz veins. An abundance of euhedral pyrite crystals up to 3 mm in size are present within and in close proximity to the quartz stringers.

A small mineralized zone containing pyrite as high as 10% was discovered during mapping in fine grained quartz monzonite on unnamed creek. This showing is located in the fault zone and may occur as a result of the Otter Lake Intrusion to the north of the property as it appears to be post local intrusive and post fault.

MAGNETOMETER SURVEY - PROCEDURE

The same grid as was used for the geochemical survey was utilized for the magnetometer survey.

Instrumentation consisted of a McPhar M700 Flux Gate magnetometer (see specifications in Appendix D) and the loop method of survey carried out. All readings were corrected for diurnal variance, plotted on a scale of 1" = 500 feet and contoured.

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MAGNETOMETER SURVEY - RESULTS

Background for the property is in the order of 400 gammas and generally little relief is obvious except in the central portion of the claims.

A magnetic "low" (-640 gammas) flanked by an anomalous high up to 980 gammas occurs along the trace of the intrusive-volcanic contact, the high anomaly being coincident with an anomalous geochemical reading of 115 ppm. Both the fault and contact are indicated by the survey.

Small anomalous low and high readings occur along the baseline, east of the contact and north of the fault.

An anomalous zone south of the fault in the area of claim 14 may indicate a change in rock type.

Anomalous magnetic zones, particularly in the contact area and fault zone should be followed up by additional ground geological, g eophysical and geochemical surveys, to determine the possibility of the presence of sulphide mineralization and possible copper association.

GEOCHEMICAL SURVEY - PROCEDURE

<u>Grid</u>: A base line was run in a N15^OW direction through the central portion of the claims. Stations were located every 200 feet and lines run out at right angles with stations being located every 200 feet along these lines. The total number of line miles is 17.3.

Field procedure: A total of 358 soil samples were collected where possible from the soil "B" horizon and the samples were placed in kraft paper envelopes.

Geochemical Analysis: The soil samples were tested for copper by Kamloops Research & Assay Laboratories Ltd. The method of analysis was as follows:

1. Dried in an electric oven,

2. Screened to -80 mesh,

- 3. A 0.5 gramme sample weighed out and digested in 5 mls. hot HCl and HCl03 and then evaporated to dryness.
- 4. Residues from 3 dissolved in 40 mls. of water,
- Results were tested by atomic absorption spectrometry against known standards.

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RESULTS OF GEOCHEMICAL SURVEY

By inspection, 40 ppm copper is considered to be background reading for the property. Several isolated anomalous samples in excess of twice background were encountered and follow up detailed work should be carried out in these areas particularly in the area of the volcanic-intrusive contact.

CONCLUSIONS

The Cadet Resources Ltd property consists of a contiguous group of 52 located mineral claims which are located about eleven miles north of Tulameen, British Columbia. The property lies on the edge of the Interior Plateau and is underlain by igneous and volcanic rocks forming a favourable geologic environment for the occurrence of base metal deposits.

A number of isolated geochemical copper anomalous readings were encountered around which further detailed investigation should be carried out and anomalous magnetic zones and geochemistry in the contact and fault zone areas require further exploration.

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RECOMMENDATIONS

The reconnaissance survey carried out to date on the property indicates that further detailed geological, geophysical and geochemical surveys are warranted with emphasis placed on the contact area as outlined below:

- Prepare a line control grid at 200 foot spacing in contact area,
- Conduct a geological mapping and prospecting programme,
- Conduct a magnetometer survey on the basis of 200 feet x 100 feet.
- 4. Conduct a geochemical soil sampling survey on the basis of 400' x 200' with analysis for copper.

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THIN SECTION INTERPRETATION

The thin sections habe been numbered and a corresponding number is found on the map. The modes, classification of minerals, and alteration products have been based on the mineral textbooks Kerr, and Deer, Howie & Zussman.

1. S4 Minerals present and their modes: Rock name Quartz Feldspar 55% (more Kspar than Monzonite CaPlag) Quartz 40% Epidote 3 to 5% Opaques 1% (semi opaque pyrite going to hematite)

> This rock is a medium grained intrusive rock showing no directive texture. The composition is almost entirely quartz and feldspar with the occassional grain of altered pyrite which is generally in proximity to the epidote grains. There is slight alteration with the plagioclase grains showing a fine dusting of sericite needles. Saussuritization of plagioclase takes place but this is not widespread.

2. S5 Minerals present and their modes: Rock name Sericite Calcium Plagioclase 20% Muscovite Schist Quartz 10% This rock was Muscovite 40% formerly a Sericite 5% granodiorite Chlorite 5% Calcite 5% Clinopyroxene 15%

> This rock out-crop is approximately 800 feet away from the fault zone. It shows some of the characteristics of fault zone rocks ie. flow texture and slickensides, but it is believed that this flow texture is probably caused by the intrusion. In other words this rock is an altered intrusive which

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5. S2/3 Minerals present and their modes: Rock name Groundmass 55% (CaPlag) Pyritized Quartz 15% quartz latite Chlorite 15% (f.g. quartz Epidote 5% monzonite) Pyrite 10%

> This rock was formerly a porphyritic volcanic. It did not contain much pyrite, but as metamorphism progressed the mafic minerals were altered to chlorite at which time pyrite mineralization took place. As metamorphism increased the rock started to take on a gneissic appearance. Pyrite is found in this rock as disseminated grains and as fine elongate threads.

6. S9 Minerals present and their modes: Rock name Calcium Plagioclase 85% Porphyritic Muscovite 10 to 15% Basalt

> This rock has under gone considerable alteration, due to hydrothermal activity as well as being in close proximity to a fault. The plagioclase laths being altered to sericite. The groundmass does not seem to have been affected the same way as the phenocrysts of plagioclase.

is near the contact. Also there are quartz Augens lying between the layers of Muscovite.

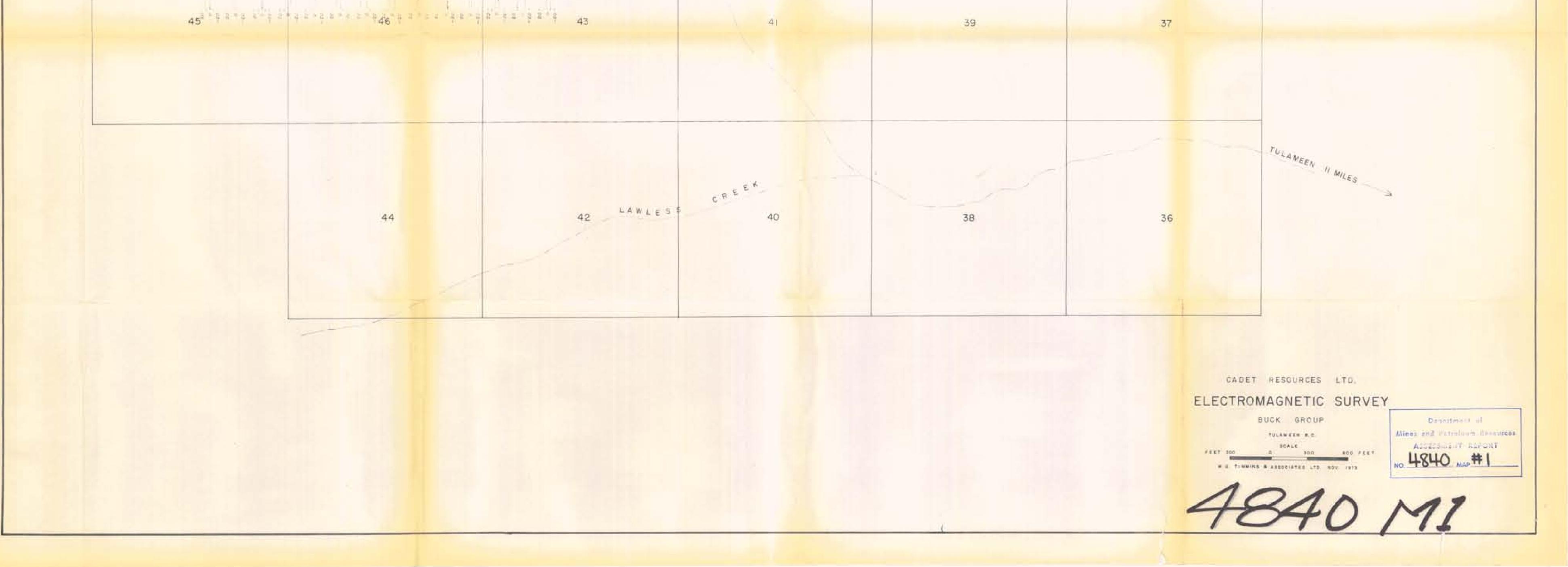
3. S6 Minerals present and their modes: Rock name Calcium Plagioclase 85% Amygdaloidal Pyroxenes 5 to 10% Basalt Calcite 5% Opaques 1%

> This rock is a good example of an Amygdaloidal Basalt. The groundmass is made up of unoriented fine grained plagioclase laths and calcite fills in the open spaces. There has been some iron staining around the grains of calcite but in the rock as a whole there has been no alteration.

4. S7 Minerals present and their modes: Rock name Quartz 25% Hydrothermally Feldspar 50% granodiorite Talc 25% Opaques 1%

> This rock consists of fine grained quartz and feldspars which show a directive texture, and have fine talc stringers throughout the rock. This rock is on strike with S5. It appears as though this rock has had greater hydrothermal activity associated with it. That is the Muscovite has been taken a step further to form talc. Also this rock was taken from an outcrop which was much closer to the fault than was S5. Therefore this would account for the talc and slickensides found in the rock. Therefore at this point the rock under went more stress from the proximity to the fault as well as being influenced by hydrothermal fluids.





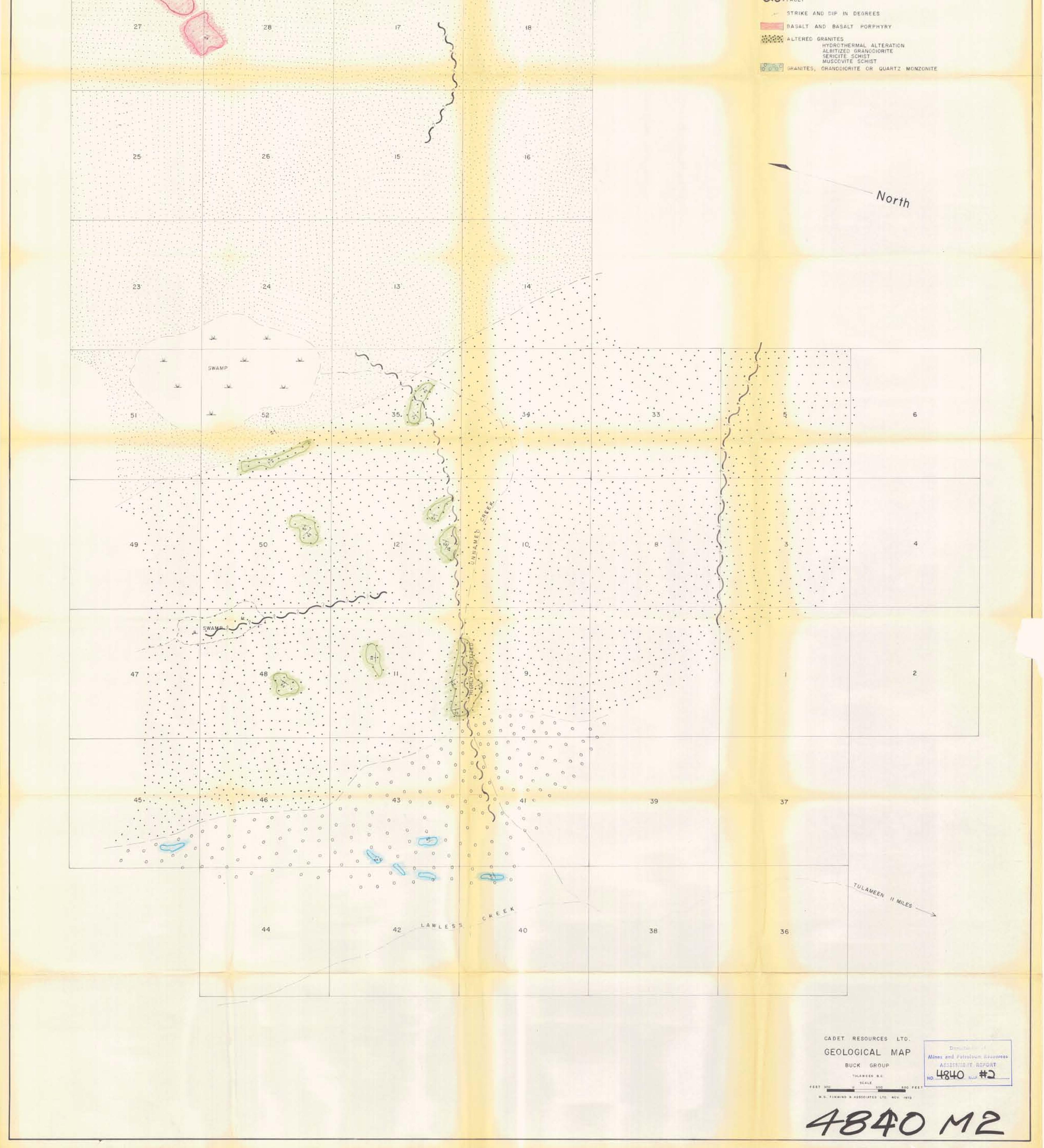


ASSUMED CONTACTS

~ FAULT

STRIKE AND DIP IN DEGREES

1.00



2454, RD2, R. LD4, NG, R24, R2555, R.HD3, 163, 555, R555, R555, R555, R557, R55, R557, R5577, R557, R5577, R5577, R5577, R5577, R5577, R5577, R

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