# GEOPHYSICAL REPORT

# ON

# AIRBORNE MAGNETIC AND VLF-EM SURVEYS

# OVER THE

# GREEN AND RIVER MINERAL CLAIMS

# GREEN RIVER AND HYLAND RIVER AREA

# WATSON LAKE MINING DISTRICT

# YUKON TERRITORIES

091519

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| | |
|---|---|
| PROPERTY | : 75 km N25°E of Watson Lake, Yukon at confluence of Green River with Hyland River |
| | : ~~61°33'~~ 60.35 N, ~~127°27'~~ 128.12 W |
| | : ~~95E/11W~~ 105 A9 |
| WRITTEN FOR | : WARBURTON MINERALS INC.<br>620 - 475 Howe Street<br>Vancouver, B.C. V6C 2B5 |
| SURVEYED BY | : COLUMBIA AIRBORNE GEOPHYSICAL SERVICES LTD.<br>#1807-1450 West Georgia Street<br>Vancouver, B.C., V6G 1T8 |
| WRITTEN BY | : David G. Mark, Geophysicist<br>GEOTRONICS SURVEYS LTD.<br>#403-750 West Pender Street<br>Vancouver, B.C., V6C 2T7 |
| DATED | : November 12, 1983 |

GEOTRONICS

GEOTRONICS SURVEYS LTD.
Engineering & Mining Geophysicists
VANCOUVER, CANADA

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This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 15,200.00.

K. Grapes

for Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

## LIST OF ILLUSTRATIONS

## SUMMARY

Airborne magnetic and VLF-EM surveys were carried out over the Green River Mineral Claims on October 1, 1983. The claim is located about 75 km N25°E of Watson Lake, Y.T. at the confluence of Green River with Hyland River, in the Watson Lake M.D.of the Yukon Territories. Access is best by helicopter or float plane from Watson Lake, Yukon. The terrain consists of mostly gentle slopes forested with small-sized spruce timber and associated brush vegetation. The purpose of the surveys was to aid in the mapping of geology as well as to locate probable areas for the exploration of silver-copper mineralization.

Previous work on the property is mostly reconnaissance in nature along the Hyland River and consists of geological mapping, magnetic surveying and soil geochemistry.

The property is underlain by a conformable sequence of early Paleozoic shales and limestones, folded into a series of northwest trending anticlines and synclines. Copper and silver bearing stratiform quartz-carbonate veins occur in areas of structural complexities.

The main silver showing termed the Main Vein, has returned assays as high as 208 ounces per ton silver. It is a 1.4 meter wide replacement vein with tetrahedrite, malachite and azurite, occurring on the overturned limb of an anticline which appears to continue for at least 6 km to the northwest.

The airborne surveys were flown at about a 60-meter terrain clearance on east-west lines with a separation averaging about 200 meters. The instruments used were a Sabre Electronics proton precession magnetometer and a Sabre Electronics VLF-EM receiver. The magnetic data were picked from the strip charts

and hand contoured. The contours were drawn on a survey plan on which the VLF-EM anomalies were plotted as well.

## CONCLUSIONS

1. Most of the property has a magnetic field that is very quiet, which is an expression of the sedimentary bedrock.

2. Two broad magnetic highs occur within the survey area that are indicative of intrusivies lying at not too great a depth below the sedimentary cover. Several relatively strong thumbprint highs occurring within the west central part of the property may be reflecting intrusive dykes. They also indicate that the overburden may not be as deep as has been assumed.

3. Several magnetic VLF-EM lineations within the survey area are indicative of geological structure such as faults, shears, and contacts.

4. Graphite occurs in the area and therefore some of the EM anomalies may be reflecting graphite.

5. Sulphides may also be a causative source of the EM anomalies whether they are single-line or multi-line.

6. There is no magnetic or EM expression of the main mineralized zone within the Green Claims. However, there may be some EM expresssion of the veins discovered north of the Hyland River.

## RECOMMENDATIONS

1. The magnetic thumbprint anomalies should be located by a ground survey and if possible, the causative source should be determined by prospecting.

2. Some of the stronger EM conductors should be checked such as the strong conductor on the River 26 and 27 Claims. This includes stronger single-line anomalies as well.

3. Some seismic refraction surveying should be considered over select areas of the property to determine over-burden depth and therefore the usefulness of other exploration methods such as soil geochemistry, induced polarization and electromagnetics.

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## INTRODUCTION AND GENERAL REMARKS

This report discusses the survey procedure, compilation of data and the interpretation of low-level airborne magnetic and VLF-EM surveys carried out over the Green & River Mineral Claims in the Green River and Hyland River area on October 1, 1983. The surveys were carried out by E.A. Dodd, instrument operator and project manager, and Lloyd Brewer, navigator, both of whom are of Columbia Airborne Geophysical Services Ltd. A total of 164.9 line km of airborne surveys were done over the property and surrounding area.

The object of the two surveys was to aid in the geological mapping of lithology and structure for the purpose of exploration of silver-copper mineralization as is found on the property.

The airborne work has been carried out as a result of recommendations contained in the geological engineering report by Don

Tully on the property. His report has been used as a reference throughout much of this report.

## PROPERTY AND OWNERSHIP

The property consists of 80 claims located in the Watson Lake Mining District of the Yukon Territories as shown on Sheet 2 and as described below:

| Claim Name | Grant No. | Expiry Date |
|---|---|---|
| Green 1- 4 | YA55596-'99 | July 28, 1985 |
| River 1-68 | YA57971-'8038 | April 2, 1984 |
| River 69-76 | YA66643-'50 | July 30, 1984 |

The expiry date shown does not take into account the surveys under discussion as being accepted for assessment credits. All claims are owned by Warburton Minerals Inc.

## LOCATION AND ACCESS

The property is found about 75 km N25°E of Watson Lake at the confluence of Green River with Hyland River. It is located about 185 km north-northeast of the town of Watson Lake on the Alaska Highway.

The geographical coordinates are 60°36'N latitude and 128°12'W longitude.

Access at present is best by helicopter or float plane from Watson Lake. The property can also be reached by motor boat up the Hyland River from the town of Lower Post on the Alaska Highway, a distance of about 106 km (66 miles).

## PHYSIOGRAPHY

The following is quoted from Keyser's geological report on the property.

"The property is in the Hyland-Liard Plateau area of south-eastern Yukon, which is typically quite flat. Elevations in the area range from 2,300 feet (700 m) in the Hyland River valley, to about 4,000 feet (1,250 m) while the highest elevation on the property is only about 2,800 feet (850 m) above sea level. The Hyland River cuts a canyon along much of its course through the property, with cliffs up to 30 metres high. Rock outcrops are restricted to the banks of the Hyland and Green Rivers.

"Slopes are generally moderate, or nonexistent. The topography has been modified by Pleistocene glaciation, and such glacial features as eskers, kettle holes, kames, and outwash plains are common.

"The property is covered by somewhat stunted forests of spruce pine, and poplar typical of southeastern Yukon."

## HISTORY OF PREVIOUS WORK

The Green 1 - 4 Claims were staked in 1965 and subsequently prospected. In 1981, more work was done including prospecting, trenching and reconnaissance soiland silt sampling. In the summer of 1983, magnetic surveyingand geological mapping was carried out in a reconnaissance manner along the Hyland River and more detailed around the main showing on the Green 1 - 4 Claims.

## GEOLOGY

The following is quoted from Keyser's geological report on the property:

"The Green 1-4 and River 1-76 mineral claims are located in the eastern past of the Selwyn sedimentary basin. The regional geology is described on G.S.C. map 19-1966.

"In the region of the claims, the oldest exposed rocks are sedimentary (and their metamorphosed equivalents) of Hadrynian Age, locally known as "Grit Unit." These rocks are unconformably(?) overlain by a thick sequence of black argillaceous and calcareous sediments of Cambrian and Ordovican Age, which occur as an outlier in the "Grit Unit" over the claim area.

"The nearest known igneous rocks occur approximately 12 km to the southwest of the property. Here, diorite and granodiorite stocks of Cretaceous Age occur in intrusive contact with the "Grit Unit."

"Locally, the only rock unit exposed on the property are the sediments of Cambrian and Ordovican Age (Figure 3), consisting of a completely conformable unit of black shales and limestones, with gradations between each.

"Shale is the predominating rock type on the property. It occurs as black, grey weathering carbonaceous, calcareous, silty shale. Detrial grains are argillaceous in origin, and display prominent bedding plane cleavage, or fissility. Varying degrees of laminations are present. Shales from many localities on the property give off a distinct odor of natural gas when freshly broken.

"The shales are rhythmically interbedded with black carbonaceous limestones. These rocks generally occur as beds less

than two meters in thickness within the shale, although much larger sections are known. The limestones display a low degree of recrystallication and dolomitization."

"The only indication of metamorphism on the property is the presence of minor local graphite. It is suggested that the graphite is derived from organics otherwise present as carbonaceous material and natural gas by low temperature dynamothermal mechanisms.

"Structurally, the property is quite complex. The rocks are tightly folded with axial planes dipping to the northeast. Minor bedding-plane shears are common in folded areas, accompanied by parasitic (or drag) folding. The presence of graphite is restricted to areas of intense folding. Faulting has occurred on a much smaller scale than the folding. No evidence was found for major faults along any of the river valleys."

Tully also noted dykes of feldspar porphyry, felsite, and lamprophyre.

"Metallic minerals observed on the Green 1-4 and River 1-76 property are pyrite, galena, chalcopyrite, arsenopyrite, malachite, azurite and tetrahedrite. Of these, malachite, azurite and tetrahedrite are by far the most common, with tetrahedrite being the mineral of main importance.

"The tetrahedrite (or freibergite) occurs in a 1.4 meter wide quartz-carbonate stratiform vein, called the Main Vein, in the Green 1-4 claims, on the west bank of the Hyland River. The vein is in interbedded limestones and shales on the overturned southwest limb of a northwest striking anticline. A grab sample of this vein assayed 208.0 ounces/ton silver and 17.6% copper. A chip sample across 60 cm of the vein returned 53.0 ounces/ton

silver and 4.6% copper. These samples were accompanied by significant values in zinc, arsenic, and antimony. Malachite and azurite are present with the tetrahedrite.

"Copper staining (as azurite and malachite) is widespread over the area of the property. The mineralization is restricted to quartz-carbonate veins. Copper (and silver) mineralization is not known within the sediments themselves. Minor pyrite is present in the shales, and is thought to be diagenetic in origin."

## INSTRUMENTATION AND THEORY

### a) Magnetic Survey

The magnetic field was detected using a nuclear free precession proton magnetometer, manufactured by Sabre Electronic Instruments Ltd. of Burnaby, B.C. The magnetometer measures the total count of the earth's magnetic field intensity with a sensitivity of one gamma. The data are recorded on magnetic tape and 12 cm analog strip chart.

The magnetic patterns obtained from a regional airborne survey are directly related to the distribution of magnetite in the survey area. However, the geology cannot be deduced from isomagnetic maps by simply assuming that all magnetic highs are underlain by gabbro or ultramafic rocks, and that all magnetic lows are caused by limestone or chert. The problem with such a simplistic approach is that magnetite is not uniformly distributed in any type of rock. Other problems arise from the fact that most geologic terrains have rocks of high susceptibility superimposed on less 'magnetic' rocks, and vice versa. Cultural features such as powerlines, pipelines and railways also complicate matters. So many variables can be involved that it may be impossible to make a strictly accurate analysis

of the geology of an area from magnetic data alone. It is preferable to use other information such as geological, photogeological and electromagnetic in combination with magnetic data to obtain a more accurate geological analysis.

b) VLF-EM Survey

A two-frequency omni-directional receiver unit, manufactured by Sabre Electronic Instruments Ltd., of Burnaby, B.C., was used for the VLF-EM survey. The transmitters used are NLK Arlington (Seattle), Washington, operating on 24.8 KHz, and Annapolis, Maryland, transmitting at 19.0 KHz. These signals are used due to their almost orthoganal orientation enabling maximum pick-up on geological structures, and their good signal strengths. The measurement taken during the survey is the variation in the horizontal component of the signal strength.

The VLF (Very Low Frequency) method uses powerful radio transmitteres set up in various parts of the world for military communications. These powerful transmitters can induce electric currents in conductive bodies thousands of kilometers away from the radio source. The induced currents set up secondary magnetic fields which can be detected at surface through deviations in the normal VLF field. The VLF method is inexpensive and can be a useful initial tool for mapping structure and prospecting. Successful use of the VLF requires that the strike of the conductor be in the direction of the transmitting station so that the lines of magnetic field from the transmitter cut the conductor. Thus, conductors with northeast to southeast strikes will respond to Annapolis transmissions, while conductors striking southeast to southwest will respond to Seattle transmissions. Conductors striking east to south may respond to both stations, giving coincident field strength peaks.

The theory of VLF-EM interpretation is quite simple. Conduc-

tors are located at field strength maxima. In the Hyland River area, one may assume that a Seattle field strength peak represents a conductor with a generally northerly trend, and an Annapolis peak will be a conductor with an easterly trend. This, of course, only applies to conductors with clearly linear trends and cannot be assumed for single line anomalies.

It is impossible to determine the quality of conductors with any reliability, using field strength data alone. The question of linearity is in doubt if the conductor does not appear to cross the adjacent flight lines. The relatively high frequency results in a multitude of anomalies from unwanted sources such as swamps, creeks and cultural debris. However, the same characteristic also results in the detection of poor conductors such as faults, shear zones, and rock contacts, making the VLF-EM a powerful mapping tool.

The interpretive technique requires information from magnetic surveys, air photo analyses, and ground traverses to aid in discrimination between important and unwanted anomalies. Even armed with this information the interpreter can easily be misled.

## SURVEY PROCEDURE

A two-meter bird was fitted with a magnetometer coil and two omni-directional EM receivers and towed beneath the helicopter on a 10-meter cable. The terrain clearance for the bird was 60 m.

The surveys were straight-line flown in an east-west direction at an average line spacing of 200m. Navigation was visual, using 1:50,000 scale maps blown up to 1:10,000.

The aircraft used to conduct this survey was a Bell Jet Ranger helicopter. Airspeed was a constant 60 KPH so that river valleys and canyons were penetrated thoroughly. The slow airspeed provided safety, detailed coverage of boxed-in areas, and consistency of data retrieval, which is critical in rugged terrain. Within this survey, this only occurred along the two rivers.The number of line km flown as shown on Sheet 3 is 164.9.

The project supervisor, Mr. Dodd, has over 14 years of experience in conducting aerial magnetic, electromagnetic and radiometric surveys from fixed- and rotary-wing aircraft, under all types of terrain conditions.

## DATA REDUCTION AND COMPILATION

The observant magnetic total field was recorded on analogue strip charts. These were played-back together with audio recordings containing fiducial markers, and the fiducial markers were transferred to the strip charts. The fiducial markers were identified with topographic features along the flight lines.

The magnetic data were taken from the strip charts and plotted on Sheet 3 at a scale of 1:10,000 (1 cm = 100 m). The data were then contoured at a 10-gamma interval.

The VLF-EM anomalies were taken from the strip charts and plotted on the sheet with the magnetics. For each anomaly, a heavy line along the flight line was drawn showing its half-width. An 'S' or an 'A' designated the anomaly as being from the Seattle transmitter or the Annapolis transmitter.

Strong anomalies were plotted with exclamation marks, and anomalies without any marks indicate average responses. Anomalies that were very weak are shown by the letters 'v. w.'.

## DISCUSSION OF RESULTS

The magnetic field within the survey area varies from 520 gammas
within the southeast corner to 840 gammas within the northwest corner to give a range of 320 gammas. Within the property area, the range is smaller at 180 gammas varying from 520 gammas within a thumbprint high next to the 520 gamma low.

In general, the magnetic field over most of the survey area is quite flat. This is expected since the underlying rock type is sedimentary.

The most prominent feature, however, is a strong magnetic high of 840 gammas occurring at the extreme northeast corner of the survey area and about 1.5 km east of the property boundary.

The government airborne magnetic survey shows this high to be a part of a northerly-trending high. Also, this magnetic high occurs near the base of a hill. Quite probably, therefore, the high is caused by an intrusive that is likely related to the cause of the hill, as well. It is quite possible the intrusive may not outcrop.

Three other significant highs occur (1) about 1 km east of the River 16 Claim (2) within the River 13 Claim (3) and within the River 17 and 18 Claims. All four of these highs occur within a broad high located across the northern part of the property and open to the north. This broad high may be indicative of an intrusive occurring at depth below the sedimentary bedrock. The localized highs within the broad high may simply mean the sedimentary cover is thinner at these points, or, they may be reflecting intrusives dykes.

Within the west central part of the property and open to the west occurs a broad magnetic high containing several thumbprint-type highs. Again, the broad high may be indicating that an intrusive occurs at not to great a depth (that is, relative to the rest of the survey area). The thumbprint highs, however, are indicating an intrusive fairly close to surface. This seems to indicate that the overburden is not as thick as has been assumed.

The intrusives may be the feldspar porphyry, felsite, or lamprophyre dykes as noticed by Tully. It should be pointed out that the contours have been drawn so that the highs are oval in shape. However, the highs could have been joined in twos and contoured as such, so that the highs would have been lineal in shape and more indicative of dykes.

The two broad highs have been outlined on Sheet 3 by mainly following the 570-gamma contour.

There seems to be no magnetic expression associated with the mineralization discovered to date on the Green and River Claims.

The major cause of VLF-EM anomalies, as a rule, are geologic structure such as fault, shear and breccia zones. It is therefore logical to interpret VLF-EM anomalies to likely be caused by these structural zones. Of course, sulphides may also be a causative source. But in the writer's experience, when VLF-EM anomalies correlate with sulphide mineralization, the anomalies are usually reflecting the structure associated with the mineralization rather than the mineralization itself.

There is some variation in intensity from one VLF-EM anomaly to the next. This is not only due to the conductivity of a causative source, but also the direction it strikes relative to the

direction to the transmitter. In other words, those conductors lying close to the same direction as the direction to the transmitter can be picked up easier than those that are lying at a greater angle. Depending upon its conductivity, a conductor may not be picked up at all if it is at too great an angle.

Lineal trends considered to be indicative of geological structure have been drawn on Sheet 3 taking into account:

a) Magnetic lows which are often caused by the magnetite within the rocks being altered by geological structure processes.

b) VLF-EM anomalies which more often than not are reflecting structure.

Several magnetic lineations that are indicative of faults have been mapped across the property striking northerly,northeasterly, and one northwesterly. These are therefore indicating faults, shears, and/or contacts striking in these directions. Some of these correlate with faults as mapped by Keyser such as the northerly-trending one near the confluence of the Green and Hyland Rivers.

With lineations striking in different directions, several cross each other in different areas. Structure is often important for the emplacement of mineralizing fluids especially where they intersect. Thus these areas may have greater exploration interest.

There are also some moderately strong EM conductors occurring on the Green River property that could well be related to mineralization. These conductors are marked as such on Sheet 3.

The strongest conductor with length occurs on the western part of the property on the River 26 and 27 claims. It strikes southwesterly off the property and has a length of 1,400 m.

Considering that graphite occurs in the area, it should be remembered that some or many of the EM anomalies could be caused by graphite.

There is a greater number of anomalies occurring north of the Hyland River within the higher magnetic field within this area. Perhaps this is caused by more graphitic occurrences related to metamorphism caused by the nearby intrusive(s).

Most of the anomalies are produced by the Seattle transmitter for the following two reasons:

1. The Seattle transmitter is relatively close and therefore the gain can be kept at a minimum so that very subtle anomalies can be picked up. On the other hand, the gain has to be turned quite high for the Annapolis signal so that the trace is quite noisy.

2. The east-west survey lines are more optimum for the Seattle transmitter.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

David G. Mark,
Geophysicist

November 12, 1983

## SELECTED BIBLIOGRAPHY

Aeromagnetic Map - Green River, Map 1328G, Sheet 105A/9, Geol. Surv. of Can., 1962.

Gabrielse, H., Geology Map - Watson Lake, Map 19- 1966, Geol. Surv. of Can., 1966.

Keyser, Harmen J., Report on the 1983 Geological Fieldwork on the Green 1-4 and River 1-76 Mineral Claims, Watson Lake M.D., Y.T. for Warburton Minerals Incorporated, August 26, 1983.

Tully, Donald W., Report on the Swan 1 Mineral Claim (20 units), Grant #F02964, Lucky Lake - Flat River Area, Nahanni M.D., N.W.T., for Warburton Minerals Inc, March, 1982.

## GEOPHYSICIST'S CERTIFICATE

I, DAVID G. MARK, of the City of Vancouv r, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geophysicist of Geotronics Surveys Ltd., with offices located at #403-750 West Pender Street, Vancouver, British Columbia.

I further certify:

1. That I am a graduate of the University of British Columbia (1968) and hold a B.Sc. degree in Geophysics.

2. I have been practising my profession for the past 15 years and have been active in the mining industry for the past 18 years.

3. That I am an active member of the Society of Exploration Geophysicists and a member of the European Association for Exploration Geophysicists.

4. This report is compiled from data obtained from airborne magnetic and VLF-EM surveys carried out by Columbia Airborne Geophysical Services Ltd., under the supervision of E.A. Dodd on October 1, 1983.

5. I have no direct or indirect interest in any of the properties mentioned within this report, nor in Warburton Minerals Inc., nor do I expect to receive any interest as a result of writing this report.

David G. Mark
Geophysicist

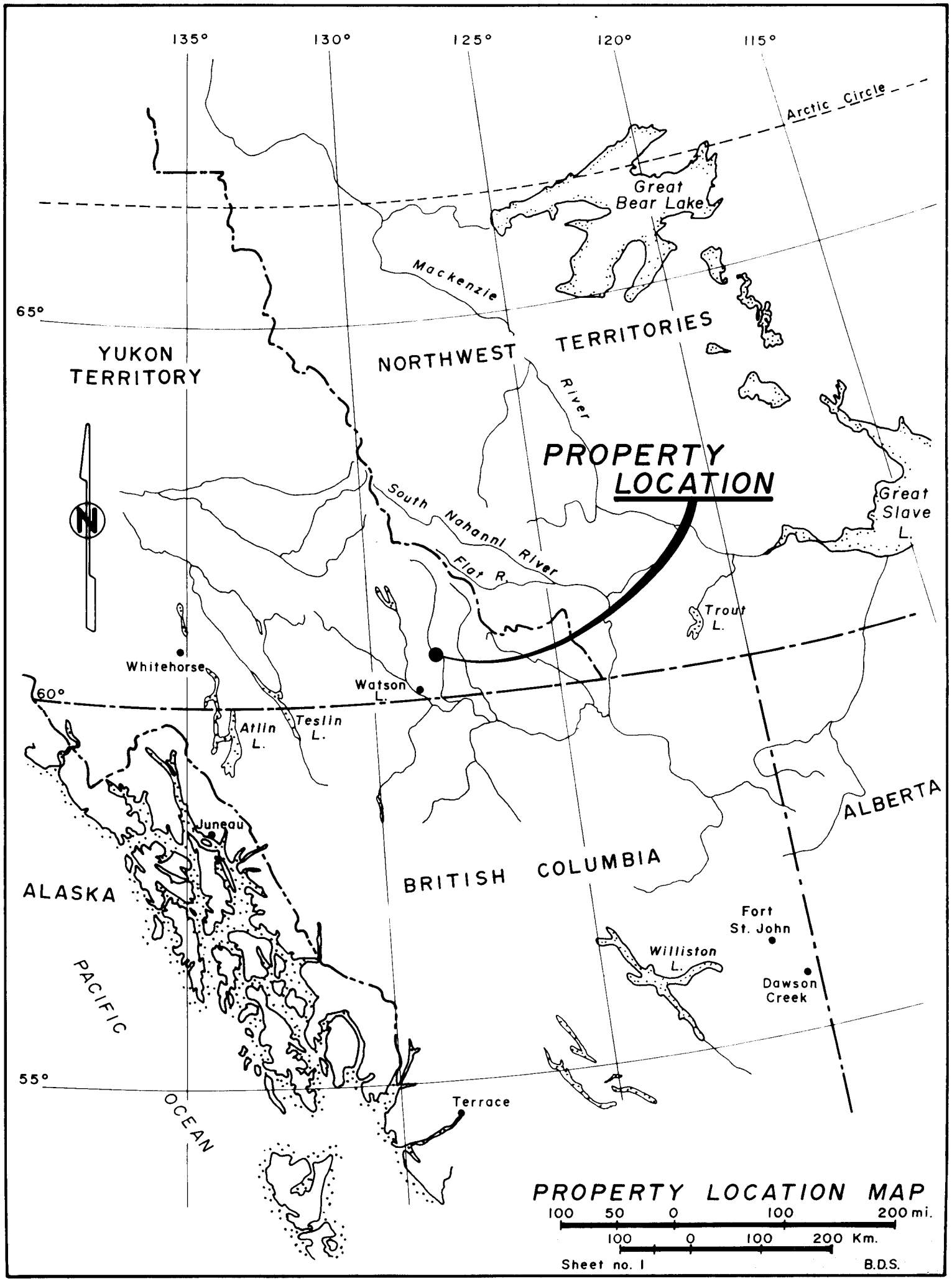
November 12, 1983.

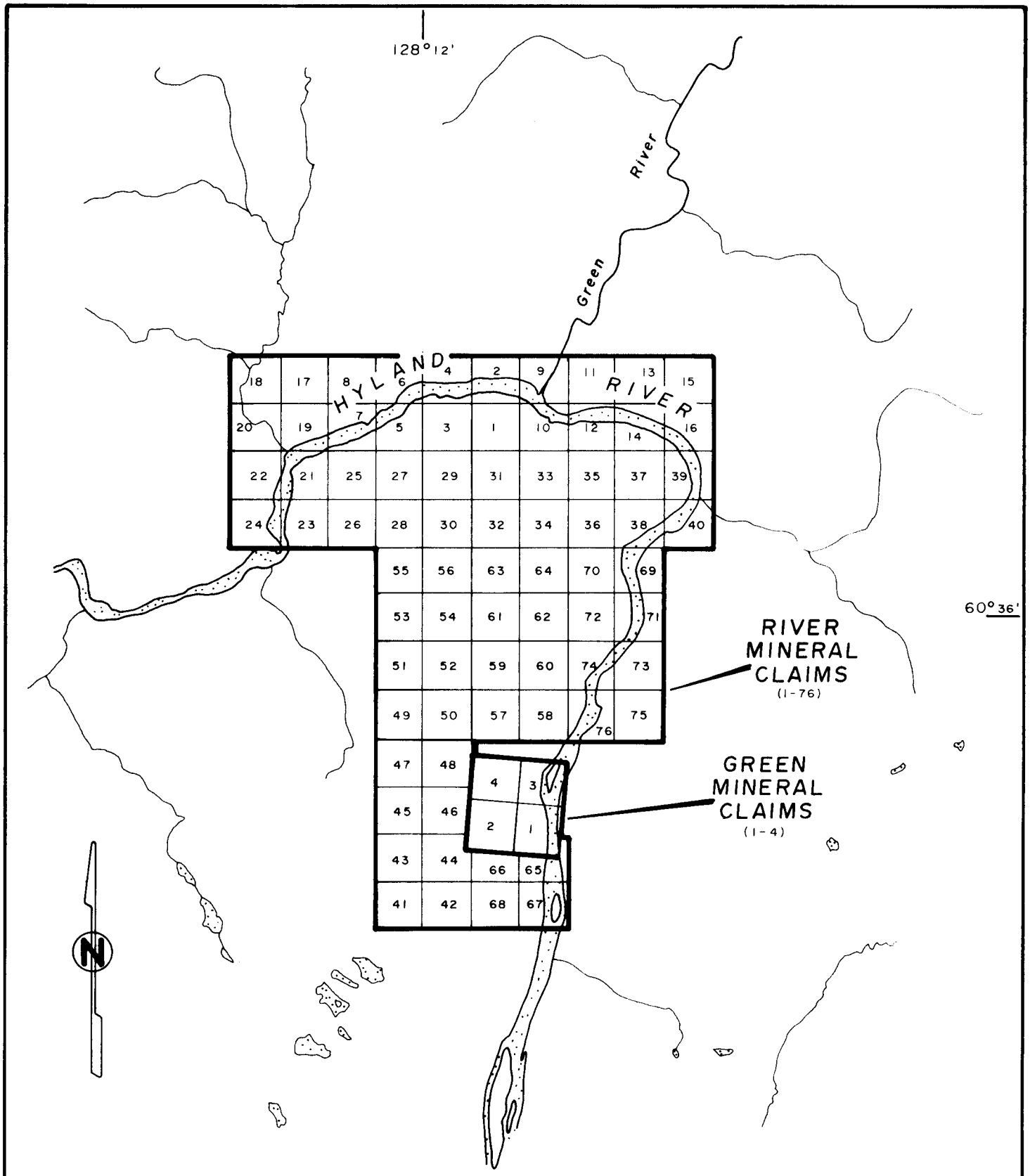
## AFFIDAVIT OF COSTS

I, David G. Mark, president of Geotronics Surveys Ltd., certify that the airborne magnetic and VLF-EM surveys were flown on October 1, 1983, and that they were flown to the value of $19,500.00, this value being an all-inclusive figure (mobilization, demobilization, helicopter, report, etc.).

David G. Mark

November 12, 1983


135°
130°
125°
120°
115°
Arctic Circle
Great Bear Lake
Mackenzie
65°
YUKON TERRITORY
NORTHWEST TERRITORIES
River
PROPERTY LOCATION
South Nahanni River
Flat R.
Great Slave L.
Trout L.
Whitehorse
Watson L.
60°
Atlin L.
Teslin L.
ALBERTA
Juneau
BRITISH COLUMBIA
ALASKA
Fort St. John
Williston L.
Dawson Creek
PACIFIC
55°
OCEAN
Terrace
PROPERTY LOCATION MAP
100 50 0 100 200 mi.
100 0 100 200 Km.
Sheet no. 1
B.D.S.




**WARBURTON MINERALS INC.**

RIVER & GREEN MINERAL CLAIMS

GREEN RIVER & HYLAND RIVER AREA

YUKON TERRITORY

*CLAIM LOCATION MAP*

| 1:50,000 | Oct 83 | Sheet 2 | B.D.S. |
|---|---|---|---|

# INVOICE



GEOTRONICS SURVEYS LTD.
403 - 750 W.PENDER ST.
VANCOUVER, CANADA V6C 2T7
(604) 687-6671



TO:

DATE:

INVOICE No.:

DESCRIPTION:

**Please pay this amount.**

BALANCE DUE UPON RECEIPT OF THIS INVOICE

Interest at 2% per month charged against Overdue Accounts

091519

Office of the Regional ... MAR 1 2 1984 Whitehorse Yukon

# INVOICE

GEOTRONICS SURVEYS LTD.
403 - 750 W.PENDER ST.
VANCOUVER, CANADA V6C 2T7
(604) 687-6671

RECEIVED 8 MAR 1984 MINING RECORDER WATSON LAKE, Y.T. I.A. & N.D.

TO:
Warburton Minerals Inc.
1587 West 62nd Avenue
Vancouver, B.C.
V6P 2E9

DATE: Nov. 15, 1983

INVOICE No.: 83-51

| DESCRIPTION: | | |
|---|---|---|
| Low-level Airborne VLF-EM and Magnetometer Surveys<br>Hyland River - Green River Area<br>Watson Lake M.D., Y.T. | | |
| As per agreement:<br>164.9 line km at $100/km | 16,490.00 | 16,490.00 |
| | **Please pay this amount.** | $16,490.00 |

BALANCE DUE UPON RECEIPT OF THIS INVOICE

Interest at 2% per month charged against Overdue Accounts

091519

Department of Indian Affairs and Northern Development

YUKON QUARTZ MINING ACT

# FORM "C" - APPLICATION FOR A CERTIFICATE OF WORK

(This form required in duplicate with sketch showing location of work.)

RECEIVED
8 MAR 1984
MINING RECORDER
WATSON LAKE, Y.T.
I.A. & N.D.

OFFICE DATE STAMP

| | | | |
|---|---|---|---|
| I (Name) | JOHN C. TURNER | Occupation | PROSPECTOR |
| (Postal Address) | P. O. Box 94, Watson Lake, Y.T. | | |

MAKE OATH AND SAY, THAT :-

1. I am the ~~owner or~~ agent of the owner, of the mineral claim(s) to which reference is made herein.

2. I have ~~done or~~ caused to be done, work on the following mineral claim(s):
(Here list claims on which work was actually done by number and name)

YA 57971 - YA 58038 RIVER 1-68
YA 66643 - YA 66650 RIVER 69-76

situated at 60° 35' N. LAT & 128° 11' W LONG Claim Sheet No. 105-A-9

in the WATSON LAKE Mining District, to the value of at least $16,490

dollars, since the 30 day of SEPT 19 83,

to represent the following mineral claims under the authority of Grouping Certificate No. _____.
(Here list claims to be renewed in numerical order, by grant number and claim name, showing renewal period requested.)

YA 57971 - YA 58038 RIVER 1-68 2 YEARS

YA 66643 - YA 66650 RIVER 69-76 2 YEARS

3. The following is a detailed statement of such work: (Set out full particulars of the work done indicating dates work commenced and ended in the twelve months in which such work is required to be done as shown by Section 53)

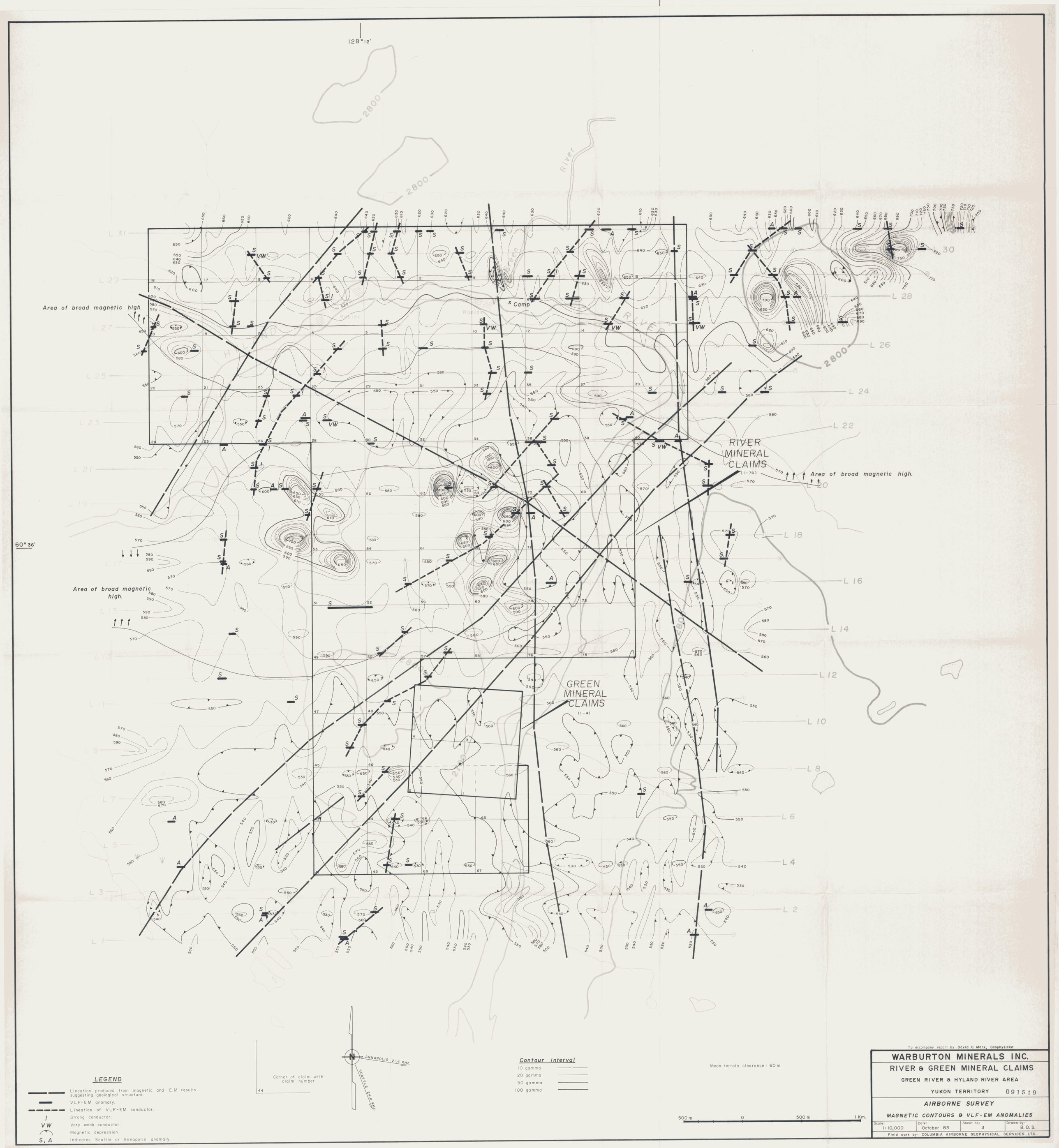
Airborne geophysical IEM and MAG by Geotronics Surveys Ltd. and Columbia Airborne Geophysical Services Ltd., 403-750 West Pender Street, Vancouver, B. C.

Survey conducted on October 1, 1983. E. A. Dodd, operator; Lloyd Bremer, navigator. 164.9 Km airborne EM and MAG.

Sworn before me at WATSON LAKE Y.T.
this 8 day of March 19 84

Notary Public

Applicant.


128° 12'
60° 36'
Area of broad magnetic high.
Area of broad magnetic high.
Area of broad magnetic high.
RIVER MINERAL CLAIMS (1-76)
GREEN MINERAL CLAIMS (1-4)
x Camp
L 31
L 30
L 29
L 28
L 27
L 26
L 25
L 24
L 23
L 22
L 21
L 20
L 19
L 18
L 17
L 16
L 15
L 14
L 13
L 12
L 11
L 10
L 9
L 8
L 7
L 6
L 5
L 4
L 3
L 2
L 1
2800
LEGEND
Lineation produced from magnetic and E.M results suggesting geological structure.
VLF-EM anomaly.
Lineation of VLF-EM conductor.
Strong conductor.
VW Very weak conductor.
Magnetic depression.
S, A Indicates Seattle or Annapolis anomaly.
Corner of claim with claim number.
44
N
ANNAPOLIS 21.4 KHz.
SEATTLE 24.8 KHz.
Contour interval
10 gamma
20 gamma
50 gamma
100 gamma
Mean terrain clearance: 60 m.
500 m
0
500 m
1 Km.
To accompany report by David G. Mark, Geophysicist
WARBURTON MINERALS INC.
RIVER & GREEN MINERAL CLAIMS
GREEN RIVER & HYLAND RIVER AREA
YUKON TERRITORY
091519
AIRBORNE SURVEY
MAGNETIC CONTOURS & VLF-EM ANOMALIES
Scale: 1:10,000
Date: October 83
Sheet no: 3
Drawn by: B.D.S.
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