MAP No. 105 D 2	ASSESSMENT REPORT [X] PROSPECTUS [ ] CONFIDENTIAL [X] OPEN FILE [ ]	DOCUMENT NO.: 091719 MINING DISTRICT: Whitehorse M.D. TYPE OF WORK: Geochemical, Geophysical

REPORT FILED UNDER: W.L. Fowler

DATE PERFORMED: July, 1986 | DATE FILED: 10 June 1987

LOCATION		AREA: Montana Mountain, Carcross
LAT.	60° 07' N	
LONG.	134° 40' W	

CLAIM NAME & NO. TAG 1-20 YA94438-94457

VALUE $10,000.00	
WORK DONE BY:	G.S. Davidson
WORK DONE FOR:	W.L. Fowler
DATE TO GOOD STANDING	REMARKS: #244 TAG

GEOCHEMICAL AND GEOPHYSICAL ASSESSMENT REPORT

on the
TAG 1-20 Claims
YA94438 - YA94457
NTS 105 D/2
Latitude 60°07'N, Longitude 134°40'W
Whitehorse Mining District

For:
WALTER L. FOWLER
Suite 1314 - 510 West Hastings Street,
Vancouver, B.C.

By:
G. S. DAVIDSON, P.Geol.

June 1987

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 $ 10,000.00.

D Emond

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

SUMMARY

The TAG 1-20 claims are located on Montana Mountain in the south-western Yukon adjacent to the old Arctic Gold and Silver Mines property. The Arctic Mine was operational from 1905 to 1909 and from 1966 to 1969; a reported 65,000 tons of gold and silver bearing ore was mined from three quartz vein structures occurring in granitic rocks of the "Carcross Pluton".

The geological environment on the TAG claims is considered similar to that which hosts the fractured quartz vein systems on the old Arctic Mines property. An initial exploration program was undertaken on the TAG property in July 1986.

The geochemical and geophysical surveys outlined inferred VLF conductors and coincidental gold geochemical anomalies at the western and eastern ends of the property. Sporadic anomalous gold values of up to 220 ppb in soil occur along the east-west trending VLF crossovers, mainly at the east end of the grid. A follow-up program of prospecting, detailed geochemistry and bulldozer trenching is recommended to evaluate the anomalous zones.

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INTRODUCTION

The TAG 1-20 mineral claims lie on Montana Mountain adjacent to the old Arctic Gold and Silver Mines property in southwestern Yukon. An initial exploration program was undertaken on the claims in July 1986. This report, prepared at the request of W. L. Fowler, describes the results of the initial exploration work and recommends a follow-up program of exploration.

Available geological and historical information on the Windy Arm-Montana Mountain district was reviewed during the preparation of this report. The writer has supervised numerous exploration programs in the area and is familiar with the nearby Venus Mine and Arctic Gold and Silver Mine.

LOCATION AND ACCESS

The TAG claims are located 60 km south of Whitehorse, Yukon, and 5 km south of the town of Carcross on a broad upland area below Sugarloaf Hill on NTS Map Sheet 105-D-2. Approximate geographical co-ordinates are 60°07' north latitude and 134°40' west longitude. The property location is shown in Figure 1.

Access to the claims is by the Arctic Gold and Silver Mines haulage road which leaves the Skagway Highway one kilometer south of Carcross. A secondary road branches off the haulage road approximately 2 km south of the old mill site and extends onto the upland plateau covered by the TAG property. Road distance from the Skagway Highway to the claims is 7 km.

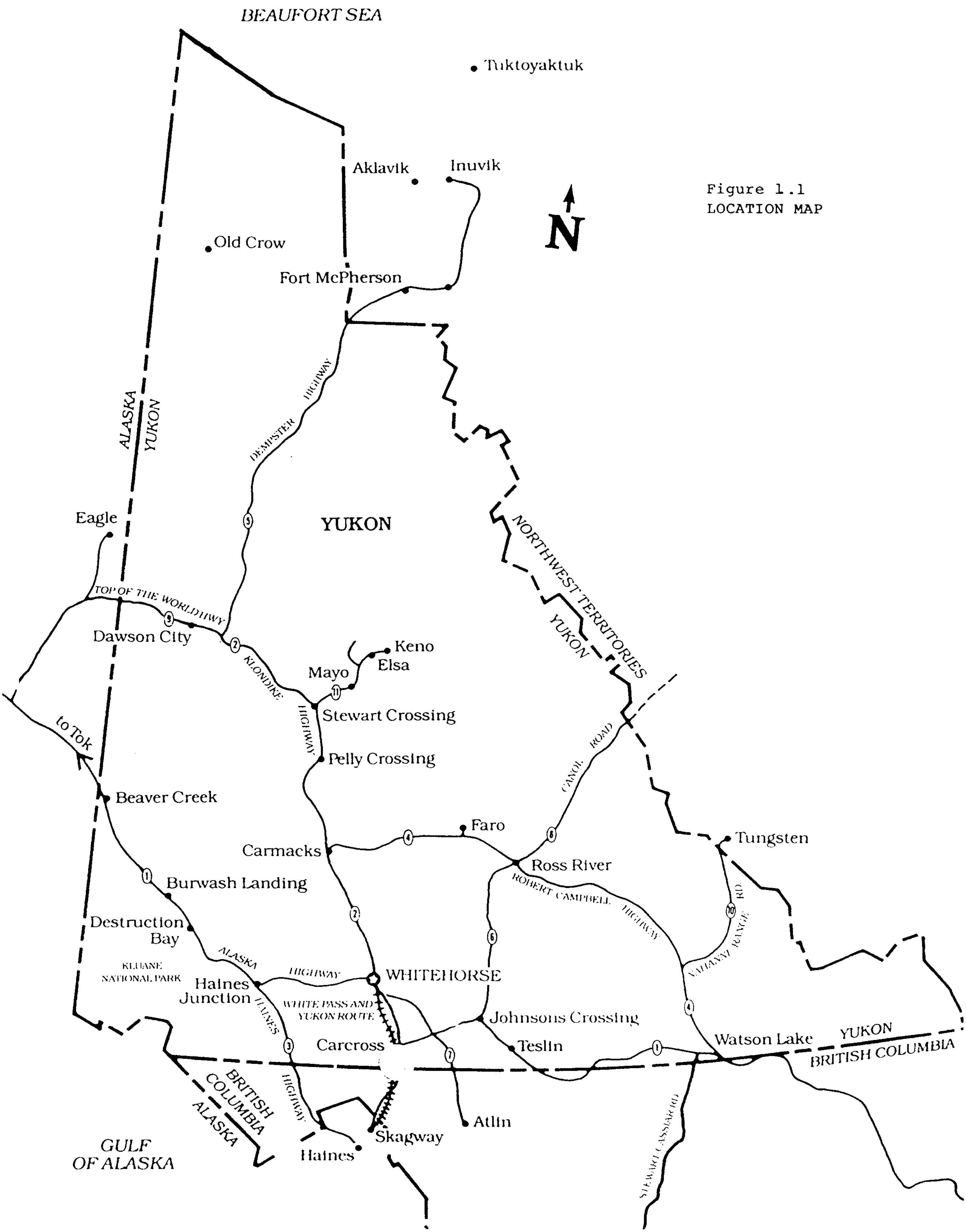


Figure 1.1
LOCATION MAP

PHYSIOGRAPHY, CLIMATE, VEGETATION

The TAG property covers a gently sloping broad upland area north of the Montana Mountain massif. Elevations range from treeline at 1370 m (4500') to barren grassy slopes at 1680 m (5500'). Glacial material, cut by shallow gullies, overlies the northern part of the claim block while higher slopes feature the characteristic solufluction overburden patterns. Outcrop is limited to rocky bluffs in the southeast and to a narrow gully in the northwestern edge of the upland plateau.

Southwestern Yukon has a dry subarctic climate with temperatures varying between extremes of -50°C in winter and +25°C in summer. Precipitation averages 40 cm per annum. Montana Mountain at 7280 feet is known for its severe weather conditions, primarily at higher elevations, where strong winds and heavy snow cover hinder mineral exploration. On the TAG claims, the access road is snowbound until mid-June. Exploration work is practical between late June and early October.

Vegetation consists of buck brush in the narrow gullies and bracken or grass on the open slopes.

PROPERTY

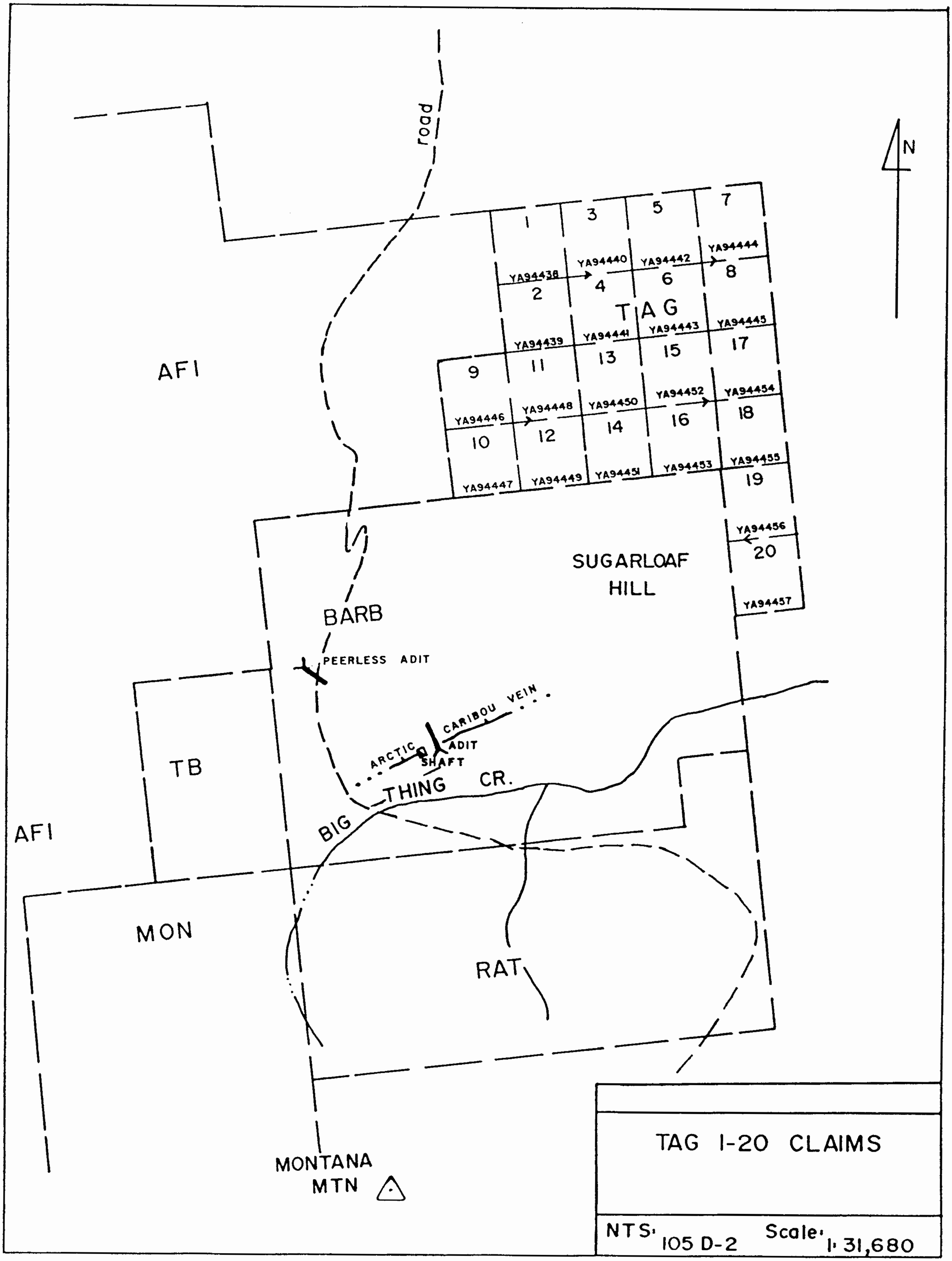
Twenty contiguous mineral claims (TAG 1-20) are recorded in the office of the Whitehorse Mining Recorder. Figure 2 shows the claim plan and property data is listed in Table I.

Table I

PROPERTY COMPOSITION

Claim Name	Grant Numbers	Expiry Date	Owner
TAG 1-20	YA94438-YA94457	21 May 1992 (applied for)	W. L. Fowler

During the field work undertaken in July 1986, several claim posts were checked. The claims appear to be staked and tagged in accordance with the requirements of the Yukon Quartz Mining Act.



N
road
AFI
1
3
5
7
YA94438
YA94440
YA94442
YA94444
2
4
6
8
TAG
YA94439
YA94441
YA94443
YA94445
9
11
13
15
17
YA94446
YA94448
YA94450
YA94452
YA94454
10
12
14
16
18
YA94447
YA94449
YA94451
YA94453
YA94455
19
YA94456
20
YA94457
SUGARLOAF
HILL
BARB
PEERLESS ADIT
CARIBOU VEIN
ARCTIC
ADIT
SHAFT
BIG THING CR.
TB
AFI
MON
RAT
MONTANA
MTN
TAG 1-20 CLAIMS
NTS: 105 D-2
Scale: 1:31,680

REGIONAL GEOLOGY

The Windy Arm-Montana Mountain area overlies the boundaries between three tectonic terranes: the Whitehorse Trough, the Atlin Belt and the Coast Plutonic Complex. Folded metavolcanic and metasedimentary rocks of the first two terranes are intruded and overlain by granitic and volcanic rocks of late Cretaceous or early Tertiary age. The intrusive suite consists of granite to granodiorite with associated aplite and rhyolite porphyry sills and dykes. Late stage features of intrusion include quartz and quartz-carbonate veining with precious and base metal mineralization.

Paleozoic Atlin Terrane metavolcanic rocks (Cache Creek Group), the oldest rocks in the area, outcrop along the eastern slopes of Montana Mountain. Similar volcanic rocks of the Triassic Lewes River Group (Whitehorse Trough) occur on the western flank of Montana Mountain. Laberge Group siltstones, greywackes, argillites and conglomerates overlie the Lewes River Group and outcrop east and west of the Montana Mountain volcanic complex.

The complex consists of andesitic to dacitic flows, tuffs and breccias which correlate with the late Cretaceous or younger Mount Nansen Group of central Yukon. The granitic Carcross Pluton of late Cretaceous age, lying at the northern margin of the volcanic complex, has metamorphosed the volcanic and sedimentary rocks. Swarms of felsic dykes and nearby quartz veins and fracture zones are common in the southern part of the Carcross Pluton and in the volcanic complex.

Figure 3 shows the regional geology.

FIGURE 3.1

GEOLOGY OF MONTANA MOUNTAIN
(from C. Roots, 1981)

LEGEND

EARLY TERTIARY

COAST RANGE INTRUSIONS

biotite - hornblende granodiorite

chlorite granite (with mauve quartz)

Intrusive contact

MIDDLE OR LATE CRETACEOUS

MOUNT NANSEN GROUP

rhyolite and silicified volcanic rocks

heterolithic breccia; locally interpreted as debris flows and pyroclastic deposits

intermediate volcanic flows and plugs

flow-banded intrusion breccia

Intrusive, and locally unconformable contact

LOWER JURASSIC

LABERGE GROUP

J_L siltstone, greywacke

conglomerate lenses

Unconformity

PENNSYLVANIAN or PERMIAN

ATLIN TERRANE, probably NAKINA FORMATION

PP_{Tv} mafic volcanic flows

BASAL UNIT (?) of Atlin

um serpentinized gabbro

FIGURE 3.2

TAG 1-20 Claims
Geology

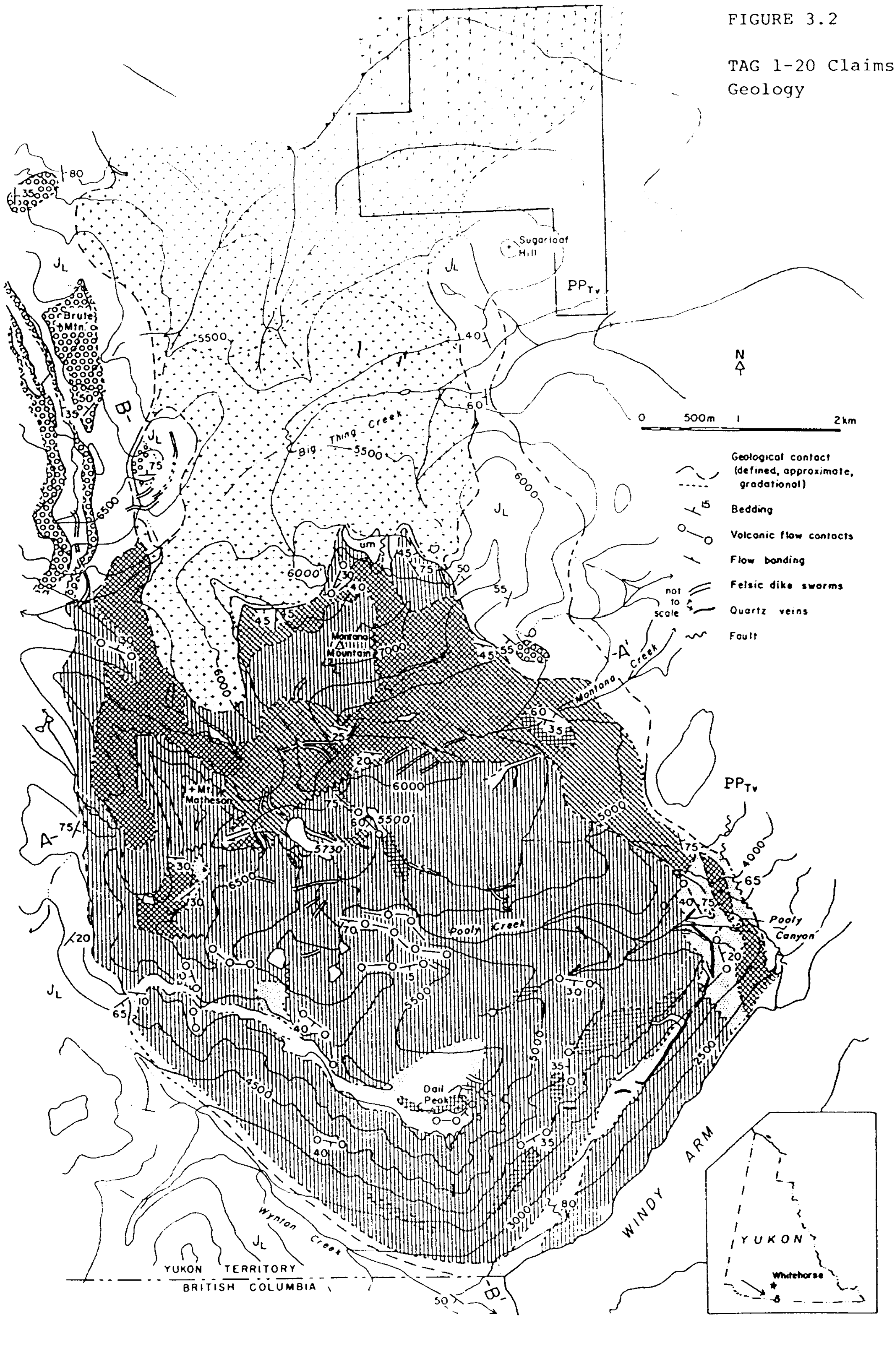


Table II

TABLE OF FORMATIONS

QUATERNARY	Glacial till, alluvial and glacial sands and gravel
LATE CRETACEOUS TO EARLY TERTIARY	Granite and quartz syenite intrusion; rhyolite dyke; andesite, basalt, dacite flows, tuffs, breccias and minor intrusions
LOWER-MIDDLE JURASSIC LABERGE GROUP	Conglomerate, siltstone, argillite, greywacke
UPPER TRIASSIC LEWES RIVER GROUP	Andesite, basalt, volcanic breccia, limestone
MISSISSIPPIAN-PERMIAN (CACHE CREEK OR TAKU GROUPS)	Greenstone, amphibolite; minor limestone, chert and serpentinized ultramafic rocks

Structurally, the volcanic complex is bounded by steeply dipping fault zones. The northern fault contact with the granitic pluton consists of chloritized breccia and fractured alaskite.

Larger regional faults, primarily along major river and lake valleys around Montana Mountain, are associated with movements in the Coast Plutonic Complex.

HISTORY OF EXPLORATION

Most of the properties located on Montana Mountain were discovered between 1900 and 1910 by prospectors partly or principally controlled by Colonel J. H. Conrad, a renowned mining promoter. Conrad raised large amounts of risk capital in England and Canada to develop and mine these properties under his company, Conrad Consolidated. The first property to be exploited was the Venus Mine, located southeast of the Montana vein, which was developed by Conrad Consolidated from 1901 to 1911, at which time a mortgage foreclosure closed the mining operation. A 100 ton-per-day mill was built at Conrad City, located on Windy Arm of Tagish Lake. Only one shipment of 647 tons of sorted ore was made in 1911 and earned a reported net profit of about $40,000. During the period 1915 to 1918, leaseholders sto p ed most of the developed ore and shipped 1715 tons of sorted ore and 314 tons of concentrate for a net profit of $145,500.

Between 1910 and 1915 the Big Thing (or Arctic Caribou) and the Montana veins were developed and several thousand tons of high grade gold-silver ore were mined, sorted and shipped. An aerial tram some four miles in length and costing about $150,000 was built from Conrad City to the Mountain Hero property before any exploration work had been done on the Montana vein.

Rising costs, war depleted workforces, and increasingly complicated litigations closed the Montana Mountain operations by 1918 and the claims were eventually dispersed in various estates. Up until 1965 no work was done on these properties. Arctic Mining and Exploration Ltd., at this time, assembled all of the properties previously mentioned, except for the Venus veins.

Extensive underground exploration and development was carried out during the period from 1965 to 1969 on the Arctic Mining and Exploration Ltd. (Arctic Gold and Silver Mines Ltd.) properties and the Venus Mine property. Concentrating plants of 300 TPD capacity were constructed by Arctic and Venus and these mines commenced mining operations in 1968 and 1970 respectively.

Three main vein structures were exposed in the underground workings at the Arctic Caribou and provided the ore produced from this mine. Ore reserves of 163,675 tons proven at 0.668 oz/ton Au, 19.82 oz/ton Ag were reported. However, the system of northeast striking and 15° to 45° northeast dipping quartz veins cutting altered granodiorite and mineralized with pyrite, arsenopyrite, sphalerite, galena and rare chalcopyrite as irregular lenses and shoots within the veins were further complicated by flexures in dip and translation along two fault systems. Production began in May 1968, closed from December 1968 to March 1969 and, after mill modifications, operated at 100 tons per day until final closure in October 1969. Mill heads averaged 0.28 ounces of gold and 10.5 ounces of silver per ton of ore at an average mill rate of 150 tons per day in 1968. A total of 25,132 tons of ore were milled and 4,627 ounces of gold and 119,887 ounces of silver were recovered. A combination of high costs, low metal prices and poor mill recovery attributed greatly to the demise of the Arctic Gold and Silver Mines venture.

Modern exploration work on the Venus vein system began in 1966 when two adits and drifts were driven on the main vein at two levels. The north 20° east vein system dips 30° west and consists of quartz and carbonate up to six feet thick with bands and lenses of pyrite, arsenopyrite, galena, sphalerite and minor chalcopyrite with some ruby silver hosted by andesite and andesite breccia of the Cretaceous Hutshi Group. It was found impossible to maintain the projected 300 tons per day mine production or the anticipated grades. Mining and milling started in September 1970 and ceased in June 1971 when the company went into receivership. A more recent attempt to mine the Venus property was undertaken by United Keno Hill Mines between 1980 and 1982 and new reserves were developed up to 1984. This mine is presently being kept on standby until precious metal prices improve.

During the period of 1966 to present, a number of other mineral occurrences found on Montana Mountain have undergone intermittent exploration. International Mine Services Ltd. conducted underground exploration in 1967-68 on the down dip extension of the Arctic Caribou No. 2 vein and surface exploration in 1967 on the Bear Molybdenum property, including some diamond drilling, and surface work on the Pooley claims. The Montana, Joe Petty and Uranus veins were explored by Arctic Mining and Exploration Ltd. in 1968-69. Montana Mines Ltd. conducted surface examinations of their Mac claims in 1968. More recently, during the past three years, exploration work has been conducted on Montana Mountain by Omni Resources, Tally-Ho Exploration Co., Anooraq, Shakwak Exploration and others. The TAG claims are strategically located on the favourable granodiorite and volcanic rocks that host the Arctic Caribou and Venus vein systems.

PROPERTY GEOLOGY

The property is underlain by Paleozoic and Mesozoic sedimentary and volcanic lithologies intruded by the granitic "Carcross Pluton". Glacial debris covers most of the upland plateau to an unknown depth.

Altered andesitic flow and pyroclastic rocks of the Cache Creek Group outcrop in the southeast corner of the property. Serpentinized amphibolite lenses occur in the greenstone primarily south of the property. Overlying grey weathering greywacke and associated sedimentary rocks of the Laberge Group outcrop south of Sugarloaf Hill and probably extend onto the claims.

The "Carcross Pluton" consisting of medium to coarse grained granite and granodiorite outcrops at the west end of the property.

South of the TAG property, at the old Arctic Gold and Silver Mines' workings, mineralization occurs in three north to northwesterly dipping fracture zones in the granodiorite. Massive to coarsely crystalline white quartz and sulphides are present in the fractured and altered host rocks. Pyrite, galena, sphalerite, arsenopyrite and minor chalcopyrite are the common sulphide minerals.

1986 EXPLORATION PROGRAM

Introduction

The 1986 exploration program was undertaken to try and locate mineralized quartz vein structures in a geological environment similar to the adjacent Arctic Gold and Silver Mines property. The program involved grid construction, VLF-EM and magnetometer surveys, and soil geochemistry.

In July, Gordon Clark & Associates Ltd. ran 22.6 km of picket base and grid lines on the upland plateau. A 2.2 km baseline orientated at 085° was initially established; then crosslines were turned at 100 m stations. Crosslines were flagged at 25 m intervals and picket stations located every 100 m. The grid plan is shown in Figure 4.

Gordon Clark & Associates collected 500 soil samples at 50 m intervals on the grid lines and a select 203 samples were analysed by Bondar Clegg & Company Ltd. for Au-Ag-Pb. Analytical techniques are descriebd in Appendix I.

Proton magnetometer and VLF-EM surveys were undertaken by the writer on the entire grid. Readings were generally taken at 25 m intervals and occasionally at 50 m intervals. The results of the geochemical and geophysical surveys are reported in the following sections.

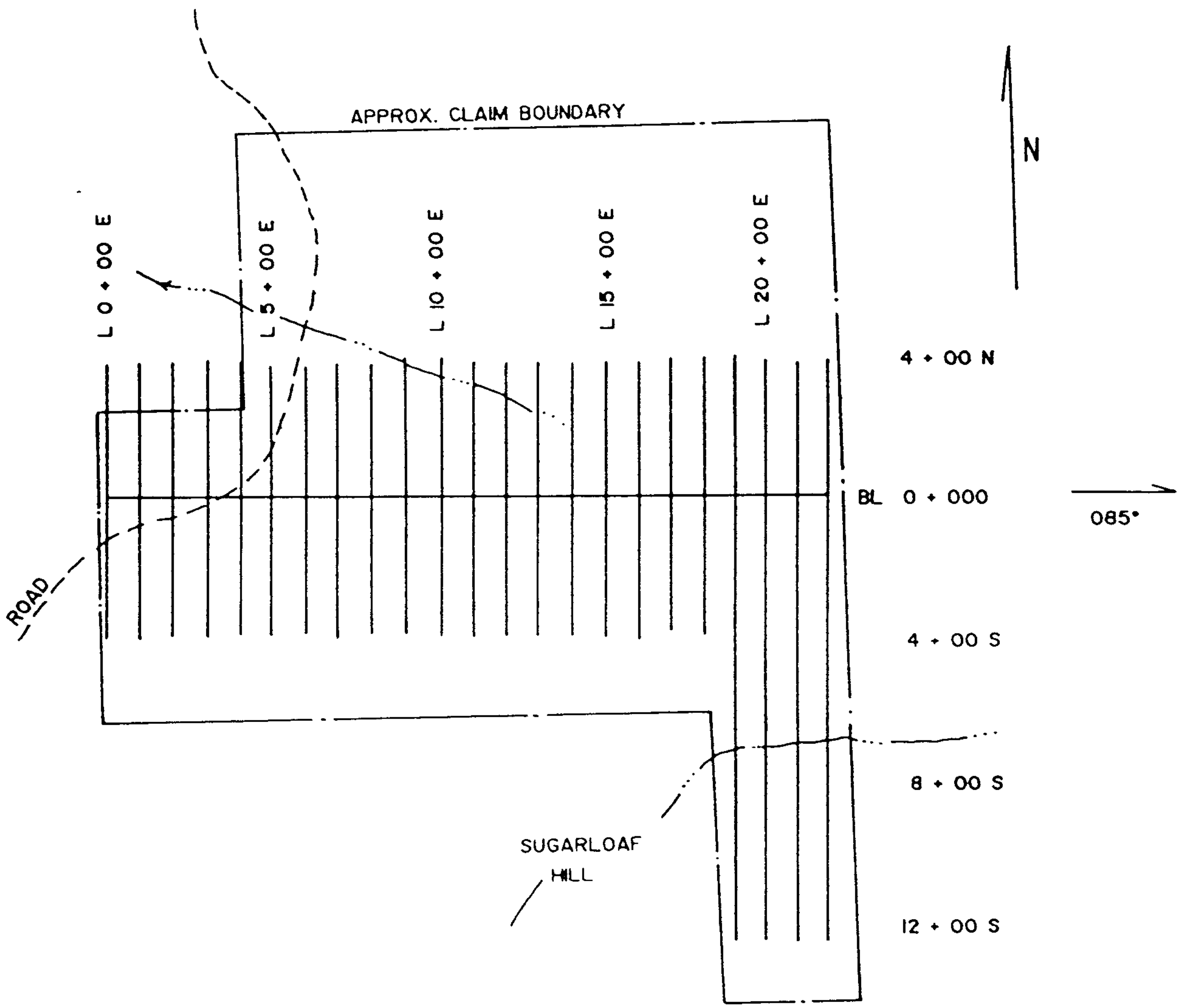


Figure 4

TAG 1 - 20 CLAIMS
GRID LOCATION MAP

NTS: 105 D/2	TECH: G.D.	DATE: JUNE '87
SCALE 1 : 20,000	DWN. BY: B.B.	FIG.:

INTEGRAPHICS LTD.

Soil Geochemistry

Several east-west trending gold anomalies of moderate intensity were outlined, mainly at the eastern end of the grid. The significant anomalies are as follows:

1) 60-160 ppb Au: located from line 18+00E-3+00S to line 22+00E-4+00S; good correlation with inferred VLF conductors on both the Maine and Seattle channels. Anomaly may extend to 85 ppb Au at L16+00E-1+00S.

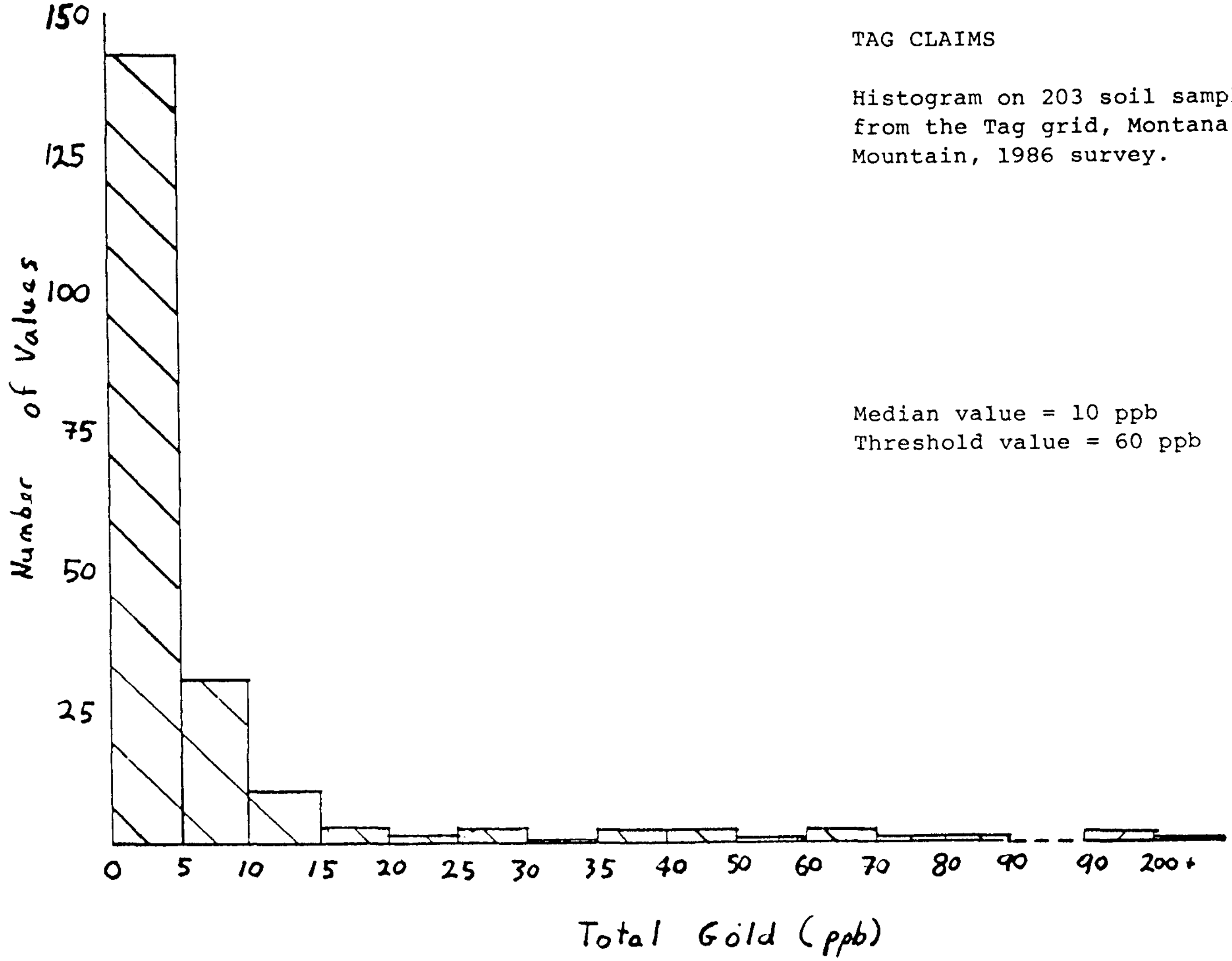
2) 220, 60, 30 ppb Au: spot anomalies at the southeastern end of the grid; some correlation with apparent VLF conductors on both channels.

3) 170 ppb Au: spot anomaly on baseline at L1+00E; correlates with VLF Frazer Filter (Maine) high.

4) 25-40 ppb Au: lines 19+00E to 22+00E at 6+00-7+00S; several weak anomalies correlate well with probable VLF conductors; east-west trend.

The goechemical responses in silver and lead were low, with no anomalies outlined. Figure 5 (in pocket) shows the Au-Ag-Pb geochemistry.

An histogram of gold in soil samples is presented in Figure 6.



TAG CLAIMS

Histogram on 203 soil samples from the Tag grid, Montana Mountain, 1986 survey.

Median value = 10 ppb
Threshold value = 60 ppb

Figure 6

Magnetometer Survey

A Geometrics G816 portable proton magnetometer was used to survey the 22.6 km of grid lines on the TAG property. Readings were taken at 25 meter (82 foot) intervals on the grid lines and base line. The main base station was established at 4+50N on line 6+00E. Additional base stations were established on the base line at regular 200 meter intervals. The magnetometer was tuned to the 60,000 gamma setting. The sensor was mounted on an eight foot staff throughout the survey and orientated in the same north-south direction at each station. Diurnal variations in the total field intensity ranged up to a maximum of 68 gammas on the first survey day to an average of 25 gammas for the next four survey days. All readings were read to the nearest gamma and corrected for diurnal variation. The results were plotted and contoured at 100 gamma intervals.

The TAG survey results are shown on Figure 7 of this report. The southeast and eastern quadrants of the survey area and the southwest section of the grid are areas of minimal magnetic relief with an average of about 58,600 gammas as background. Maximum local relief seldom exceeds ± 150 gammas in these locations. The central portion of the grid and particularly the south central area comprises a relatively high magnetic relief that increases southward toward Sugarloaf Hill at the edge of the property. The magnetic relief at this location varies from 500 gammas in the north to 1300+ gammas in the south (L 12E, 5+50S at base of Sugarloaf Hill).

Few outcrops exist in the survey area and, except for one possible location at L 1+00E, 4+50N, no granodiorite outcrops were noted. Volcanic rock of andesitic composition (sheared) outcrops between 5+50S and 12+50S on line 19+00E. In both these locations, the magnetic relief was low, thus indicating that neither the granodiorite nor the andesite rock units are very magnetic. The only area of high magnetic relief is located in the central part of the grid, where overburden is expected to be fairly deep. This extensive magnetic high (700 meters by 1000+ meters) may outline a third rock unit, considerably more magnetic than the granodiorite or andesite units.

Magnetometer Survey (cont'd)

This unit might be expected to contain magnetite and/or pyrrhotite in appreciable quantity and be more basic than the andesite flow or host skarn mineralization. There does not appear to be any discernible correlation between the VLF-EM 16 conductors, geochemical values, and the magnetic survey at this time.

VLF-EM Survey

The VLF-EM survey utilized a Geonics EM-16 instrument set on the Maine and Seattle channels. Dip angle and quadrature readings were taken at 25 m intervals for both stations. On the TAG claims, the Maine frequency was best suited to pick up east-west trending conductors, while the Seattle frequency is orientated towards detecting northwest-southeast striking structures. Figures 8 and 9 show plans of the Maine and Seattle readings respectively and Figure 10 shows the Frazer Filter interpretation of the Maine channel data. The VLF geophysical method is described in Appendix II.

On both channels, inferred conductors are located at the eastern end of the grid in close association with the anomalous gold geochemistry. Apparent conductors on L22+00E at 7+00S and 10+00S; on L21+00E at 5+00S and 9+25S and on L19+00E at 12+75S were recorded on both channels. These VLF anomalies may trace fault or fracture zones in the underlying rock. The Frazer Filter manipulation of the Maine channel data shows east-west trending anomalies of moderate strength at 5+00S, 7+00S, 9+75S and 12+50S. These anomalies correlate well with the original values plotted on the profile plan. One weakly anomalous area was outlined at the western end of the baseline where anomalous gold geochemical values were obtained. Apparent northwest trending conductors of weak strength were also detected in this area on the Seattle channel.

DISCUSSION AND RECOMMENDATIONS

Coincidental VLF conductors and gold geochemical anomalies have been outlined at the western and eastern ends of the TAG claims grid. Primarily of moderate to weak intensity, these anomalies may trace underlying fracture or fault zones. Two areas are targeted for further exploration:

1) East Grid Anomalies, lines 18+00E to 22+00E, 3+00-13+00S.

2) Western Anomaly, approximately BL 1+00E-2+00E.

Weak geochemical and geophysical responses in the central and northern area of the grids are probably due to a thick cover of glacial material. The magnetometer survey suggests that a third granitic rock unit underlies the central part of the claim block. A possible contact between granitic and volcanic rocks would extend to the northeast.

A program of prospecting, detailed geochemistry and limited bulldozer trenching is recommended to evaluate the two target areas outlined above. A follow-up program of trenching and diamond drilling would test potential mineralized veins.

REFERENCES

Macdonald, G., 1985 - Geological report on the JB 1-16 claims, Montana Mountain.

Robertson, R.C.R., 1985 - Summary report on the RAT 1-28 mineral claims, Montana Mountain area.

Roots, C.F., 1982 - Geology of the Montana Mountain area, Yukon; unpublished M.Sc. thesis, Carleton University, Ottawa.

Wheeler, J.O., 1961 - G.S.C. Memoir 312, Whitehorse map area.

STATEMENT OF QUALIFICATIONS

I, **GRAHAM DAVIDSON**, of the City of Whitehorse in the Yukon Territory hereby certify:

1. That I am a consulting geologist and that I supervised and participated in the work program described in this report.

2. That I am a graduate of the University of Western Ontario (H.B.Sc., Geology, 1981).

3. That I am registered as a Professional Geologist by the Association of Professional Engineers, Geologists and Geophysicists of Alberta (#42308).

4. That I have been engaged in mineral exploration on a full-time and part-time basis for seven years, of which five have been spent in the Yukon, Northwest Territories and British Columbia.

5. I do not have nor have I ever had any interest, direct, indirect or contingent, in the properties of W. L. Fowler, nor do I expect to receive any such interest in the properties or securities pertaining thereto.

6. I hereby grant my permission for W. L. Fowler to use this report for filing with the Vancouver Stock Exchange as partial requirement of a Statement of Material Facts or for any legal purposes normal to the business of W. L. Fowler.

SIGNED at Whitehorse, Yukon Territory, this 3 day of Jul 1987.

G. S. Davidson, P.Geol.

STATEMENT OF COSTS

Period: July 4, 1986 - August 30, 1986

PERSONNEL:	G. Davidson (geophysics): 9 days @ 250/day	$ 2,250.00
	D. Waugh (geophysics): 6 days @ 250/day	1,500.00
	G. Clark & Associates Ltd. (grid development and soil sampling)	3,458.98
ANALYSES:	203 soil samples for Au-Ag-Pb (Bondar & Clegg)	2,161.95
EXPENSES:	Transportation	791.00
	Geophysical equipment rental	650.00
	TOTAL COST	**$10,811.93**

APPENDIX I

ANALYTICAL TECHNIQUES

Soil samples were analysed by Bondar-Clegg Laboratories in Whitehorse and Vancouver. All samples were analysed for Au, Ag and Pb. Soil samples were collected from the B horizon in Kraft paper sample bags. Soil samples are dried and sieved to minus 80 mesh.

Gold analyses are by fire assay techniques using a 10 g sample but, after preparation of the lead bead, the bead is dissolved in acid and the gold content is determined by atomic absorption spectrophotometry.

Lead and silver are analysed by atomic absorption techniques; the sample is dissolved in hot aqua regia.

APPENDIX II

THE VLF METHOD

The VLF (very low frequency) method uses powerful radio transmitters set up in different parts of the world for military communications (see Figure 6.34). In radio communications terminology, VLF means very low frequency, about 15 to 25 kilocycles/second. Relative to frequencies generally used in geophysical exploration, this is actually very high.

These powerful radio transmitters induce electric currents in conductive bodies thousands of miles away. Induced currents produce secondary magnetic fields which can be detected at surface through deviations of the normal VLF field. The VLF method is relatively inexpensive and can be a useful prospecting tool.

Successful use of VLF requires that the strike of the conductor be in the direction of the VLF station so that the lines of magnetic field from the VLF transmitter cut the conductor. The upper half of Figure 6.35 shows the magnetic field vector in relation to the transmitting antenna. The lower half of Figure 6.35 shows that currents will be induced in conductor C1 but not in conductor C2 because the lines of magnetic field cut conductor C1 but not conductor C2.

Figure 6.36 shows schematically how the secondary field from the conductor is added to the primary field vector so that the resultant field is tilted up on one side of the conductor and down on the other side. A VLF receiver measures the field tilt and hence we have the tilt profile shown in the upper part of Figure 6.36.

Interpretation is quite simple. The conductor is located at the inflection point marking the crossover from positive tilt to negative tilt, and the maximum in field strength. One cannot make reliable estimates of conductor quality, however. A rule of thumb depth estimate can be made from the distance between the positive and negative peaks in the tilt angle profile. The major disadvantage of the VLF method, however, is that the high frequency results in a multitude of anomalies from unwanted sources such as swamp edges, creeks and topographic highs. It is sometimes impossible to get a powerful enough VLF station to be near the strike direction of the expected conductor. On the other hand, the tendency for VLF to respond to poor conductors has aided in mapping faults and rock contacts.

The VLF-EM survey on Montana Mountain utilized a Geonics EM-16 instrument set on the Seattle, Maine and Hawaii channels. Dip angle and field strength readings were taken at 25 meter intervals on the existing grid. Data was originally plotted on profile plan maps and then transformed to a contour type format using the Frazer Filter method.

The Frazer Filter manipulation procedure provides a data presentation which simplifies interpretation. The manipulation transforms crossovers into peaks and greatly reduces background noise.

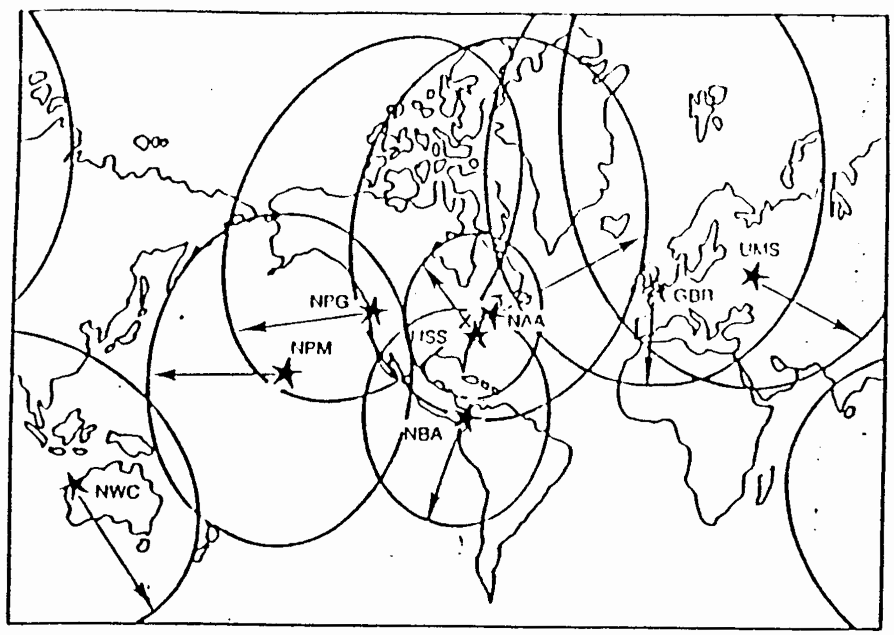


FIGURE 6.34
Locations of well-known VLF transmitter stations

Coverage shown only for well-known stations

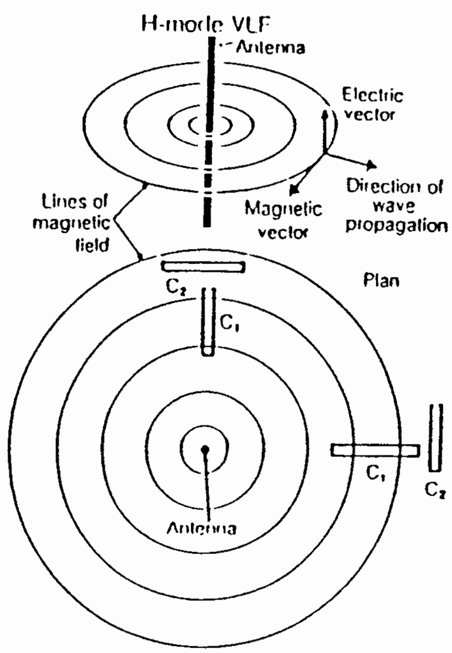
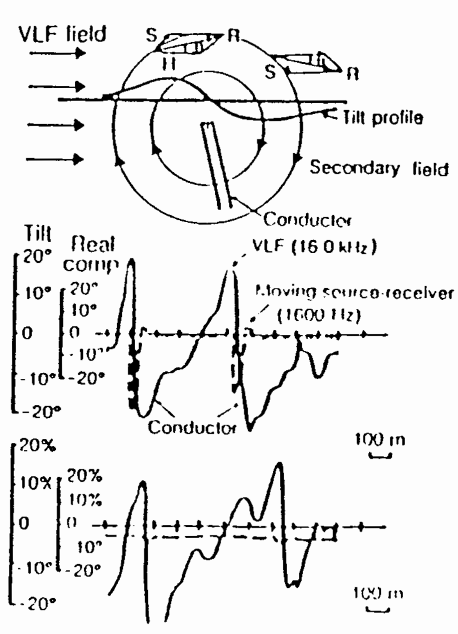


FIGURE 6.35
The VLF field

FIGURE 6.36
Tilt of the VLF field vector over a conductor



APPENDIX III

CERTIFICATES OF ANALYSIS

Bondar-Clegg & Company Ltd.
130 Pemberton Ave.
North Vancouver, B.C.
Canada V7P 2R5
Phone: (604) 985-0681
Telex: 04-352667

BONDAR-CLEGG

Geochemical Lab Report

REPORT: 127-2404 PROJECT: TAG CLAIMS PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Pb PPM	Ag PPM	Au PPB	SAMPLE NUMBER	ELEMENT UNITS	Pb PPM	Ag PPM	Au PPB
S1 L0E 1+00N		7	<0.1	<5	S1 L4E 2+00S		14	<0.1	<5
S1 L0E 2+00N		12	<0.1	<5	S1 L4E 3+00S		12	<0.1	<5
S1 L0E 4+00N		30	0.4	10	S1 L4E 4+00S		12	<0.1	<5
S1 L0E 0+00S		9	0.2	<5	S1 L5E 0+00S		14	<0.1	15
S1 L0E 1+00S		10	<0.1	<5	S1 L5E 1+00S		11	<0.1	<5
S1 L0E 2+00S		8	<0.1	<5	S1 L5E 2+00S		17	<0.1	<5
S1 L0E 3+00S		9	<0.1	<5	S1 L5E 3+00S		12	<0.1	<5
S1 L0E 4+00S		34	0.8	<5	S1 L5E 4+00S		15	<0.1	<5
S1 L1E 1+00N		15	<0.1	<5	S1 L6E 0+00S		10	<0.1	<5
S1 L1E 2+00N		10	<0.1	<5	S1 L6E 1+50S		12	0.2	10
S1 L1E 3+00N		7	<0.1	<5	S1 L6E 2+00S		13	<0.1	<5
S1 L1E 4+00N		12	0.2	<5	S1 L6E 3+00S		22	0.2	<5
S1 L1E 0+00S		10	<0.1	170	S1 L6E 4+00S		20	<0.1	<5
S1 L1E 1+00S		20	0.8	25	S1 L7E 0+00S		10	<0.1	5
S1 L1E 2+00S		21	0.6	<5	S1 L7E 1+00S		10	<0.1	<5
S1 L1E 3+00S		8	<0.1	<5	S1 L7E 2+00S		10	<0.1	<5
S1 L1E 4+00S		17	<0.1	<5	S1 L7E 3+00S		27	0.2	15
S1 L2E 1+00N		7	<0.1	<5	S1 L7E 4+00S		14	<0.1	<5
S1 L2E 2+00N		10	<0.1	15	S1 L8E 0+00S		10	<0.1	<5
S1 L2E 3+00N		10	<0.1	<5	S1 L8E 1+00S		19	0.1	<5
S1 L2E 4+00N		7	<0.1	<5	S1 L8E 2+00S		10	<0.1	<5
S1 L2E 0+00S		22	0.6	15	S1 L8E 3+00S		15	<0.1	40
S1 L2E 1+00S		21	0.3	10	S1 L8E 4+00S		13	0.2	5
S1 L2E 2+00S		12	<0.1	<5	S1 L9E 0+00S		20	0.6	<5
S1 L2E 3+00S		11	<0.1	<5	S1 L9E 1+00S		11	<0.1	<5
S1 L2E 4+00S		11	<0.1	<5	S1 L9E 2+50S		15	<0.1	10
S1 L3E 1+00N		16	<0.1	10	S1 L9E 3+00S		15	<0.1	<5
S1 L3E 2+00N		7	<0.1	<5	S1 L9E 4+00S		30	0.1	<5
S1 L3E 3+00N		10	0.2	10	S1 L10E 0+00S		20	<0.1	<5
S1 L3E 4+00N		10	<0.1	<5	S1 L10E 1+00S		10	<0.1	<5
S1 L3E 0+00S		14	0.4	10	S1 L10E 2+00S		21	0.6	<5
S1 L3E 1+00S		27	0.1	15	S1 L10E 3+50S		22	<0.1	<5
S1 L3E 2+00S		14	0.2	<5	S1 L10E 4+00S		18	0.6	<5
S1 L3E 3+00S		26	<0.1	<5	S1 L11E 0+00S		15	<0.1	<5
S1 L3E 4+00S		22	0.3	5	S1 L11E 1+00S		10	0.1	<5
S1 L4E 1+00N		20	0.5	<5	S1 L11E 2+00S		11	0.1	<5
S1 L4E 2+00N		17	0.4	<5	S1 L11E 3+00S		17	0.6	<5
S1 L4E 3+00N		12	0.2	<5	S1 L11E 4+00S		12	<0.1	<5
S1 L4E 4+00N		12	0.2	<5	S1 L12E 0+00S		10	0.1	10
S1 L4E 1+50S		12	<0.1	<5	S1 L12E 1+00S		10	<0.1	10

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BONDAR-CLEGG

Geochemical Lab Report

REPORT: 127-2404 PROJECT: TAG CLAIMS

SAMPLE NUMBER	ELEMENT UNITS	Pb PPM	Ag PPM	Au PPB	SAMPLE NUMBER	ELEMENT UNITS	Pb PPM	Ag PPM	Au PPB
S1 L12E 2+00S		8	<0.1	<5	S1 L19E 6+50S		22	<0.1	10
S1 L12E 3+00S		15	<0.1	<5	S1 L19E 7+00S		10	0.1	<5
S1 L12E 4+00S		20	<0.1	<5	S1 L19E 7+50S		10	<0.1	30
S1 L13E 0+00S		13	<0.1	5	S1 L19E 8+00S		22	0.2	10
S1 L13E 1+00S		14	<0.1	5	S1 L19E 8+50S		9	<0.1	10
S1 L13E 2+00S		10	<0.1	<5	S1 L19E 9+00S		6	0.1	20
S1 L13E 3+00S		9	<0.1	5	S1 L19E 9+50S		12	<0.1	<5
S1 L13E 4+00S		25	0.2	10	S1 L19E 10+00S		14	<0.1	<5
S1 L14E 0+00S		9	<0.1	<5	S1 L19E 10+50S		12	<0.1	<5
S1 L14E 1+00S		15	0.3	<5	S1 L19E 11+00S		14	0.2	<5
S1 L14E 2+00S		14	<0.1	5	S1 L19E 11+50S		17	<0.1	<5
S1 L14E 3+00S		12	<0.1	5	S1 L19E 12+00S		12	0.1	<5
S1 L14E 4+00S		10	<0.1	15	S1 L19E 12+50S		20	0.2	<5
S1 L15E 0+00S		7	<0.1	<5	S1 L19E 13+00S		20	0.2	30
S1 L15E 1+00S		11	<0.1	<5	S1 L20E 0+00S		11	0.7	40
S1 L15E 2+00S		9	<0.1	<5	S1 L20E 1+00S		11	<0.1	<5
S1 L15E 3+00S		8	0.2	<5	S1 L20E 2+00S		12	<0.1	<5
S1 L15E 4+00S		20	<0.1	<5	S1 L20E 3+00S		12	<0.1	10
S1 L16E 1+00S		12	<0.1	85	S1 L20E 4+00S		10	<0.1	160
S1 L16E 2+00S		10	<0.1	<5	S1 L20E 4+50S		12	<0.1	<5
S1 L16E 3+00S		12	<0.1	<5	S1 L20E 5+00S		14	<0.1	<5
S1 L16E 4+00S		13	0.1	<5	S1 L20E 5+50S		15	<0.1	<5
S1 L17E 0+00S		13	0.2	10	S1 L20E 6+00S		12	<0.1	<5
S1 L17E 1+50S		10	<0.1	10	S1 L20E 6+50S		12	<0.1	5
S1 L17E 2+00S		11	0.1	<5	S1 L20E 7+00S		20	0.1	25
S1 L17E 3+00S		14	<0.1	10	S1 L20E 7+50S		18	0.2	<5
S1 L17E 4+00S		7	<0.1	<5	S1 L20E 8+00S		10	<0.1	<5
S1 L18E 0+50S		13	<0.1	<5	S1 L20E 8+50S		12	<0.1	<5
S1 L18E 1+00S		8	<0.1	<5	S1 L20E 9+00S		10	0.2	<5
S1 L18E 2+00S		12	<0.1	<5	S1 L20E 9+50S		9	<0.1	<5
S1 L18E 3+00S		15	<0.1	60	S1 L20E 10+00S		9	<0.1	10
S1 L18E 4+00S		11	0.1	5	S1 L20E 10+50S		7	0.2	<5
S1 L19E 1+00S		11	<0.1	<5	S1 L20E 11+00S		35	<0.1	20
S1 L19E 2+00S		12	<0.1	<5	S1 L20E 11+50S		19	<0.1	5
S1 L19E 3+00S		12	0.4	70	S1 L20E 12+00S		22	0.1	<5
S1 L19E 4+00S		14	<0.1	10	S1 L20E 12+50S		16	0.2	<5
S1 L19E 4+50S		14	<0.1	<5	S1 L20E 13+00S		12	<0.1	<5
S1 L19E 5+00S		12	<0.1	<5	S1 L21E 0+00S		10	<0.1	<5
S1 L19E 5+50S		11	<0.1	50	S1 L21E 1+00S		10	<0.1	<5
S1 L19E 6+00S		10	<0.1	<5	S1 L21E 2+00S		10	0.2	5

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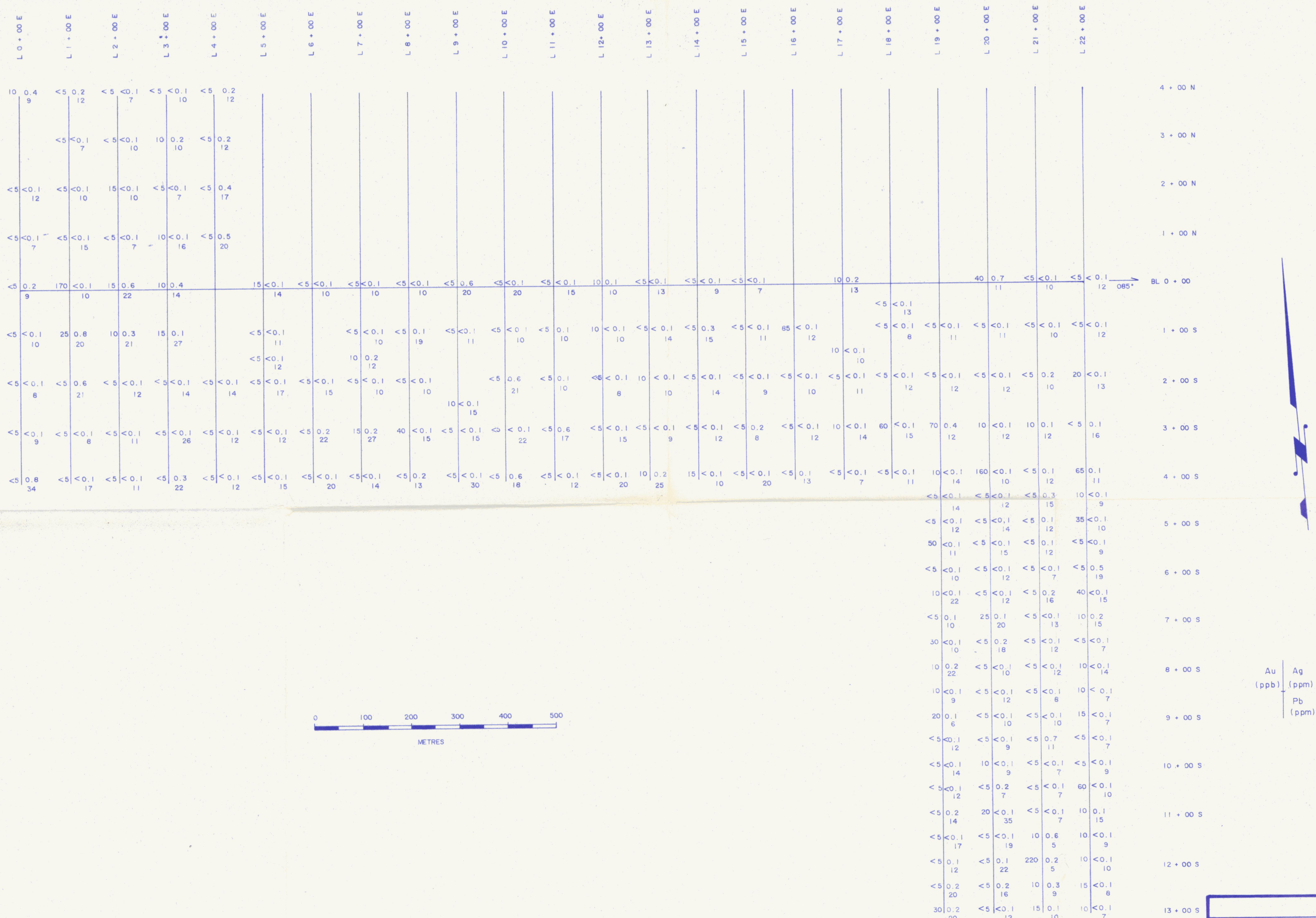
Geochemical Lab Report

REPORT: 127-2404

PROJECT: TAG CLAIMS

SAMPLE NUMBER	ELEMENT UNITS	Pb PPM	Ag PPM	Au PPB
S1 L21E 3+00S		12	0.1	10
S1 L21E 4+00S		12	0.1	<5
S1 L21E 4+50S		15	0.3	5
S1 L21E 5+00S		12	0.3	<5
S1 L21E 5+50S		12	0.1	<5
S1 L21E 6+00S		7	<0.1	5
S1 L21E 6+50S		16	0.2	<5
S1 L21E 7+00S		13	<0.1	<5
S1 L21E 7+50S		12	<0.1	<5
S1 L21E 8+00S		12	<0.1	<5
S1 L21E 8+50S		8	<0.1	5
S1 L21E 9+00S		10	<0.1	<5
S1 L21E 9+50S		11	0.7	<5
S1 L21E 10+00S		7	<0.1	<5
S1 L21E 10+50S		7	<0.1	<5
S1 L21E 11+00S		7	<0.1	<5
S1 L21E 11+50S		5	0.6	10
S1 L21E 12+00S		5	0.2	220
S1 L21E 12+50S		9	0.3	10
S1 L21E 13+00S		10	0.1	15
S1 L22E 0+00S		12	<0.1	<5
S1 L22E 1+00S		12	<0.1	<5
S1 L22E 2+00S		13	<0.1	20
S1 L22E 3+00S		16	0.1	<5
S1 L22E 4+00S		11	0.1	65
S1 L22E 4+50S		9	<0.1	10
S1 L22E 5+00S		10	<0.1	35
S1 L22E 5+50S		9	<0.1	<5
S1 L22E 6+00S		19	0.5	<5
S1 L22E 6+50S		15	<0.1	40
S1 L22E 7+00S		15	0.2	10
S1 L22E 7+50S		7	<0.1	<5
S1 L22E 8+00S		14	<0.1	10
S1 L22E 8+50S		7	<0.1	10
S1 L22E 9+00S		7	<0.1	15
S1 L22E 9+50S		7	<0.1	5
S1 L22E 10+00S		9	<0.1	<5
S1 L22E 10+50S		10	0.1	60
S1 L22E 11+00S		15	0.1	10
S1 L22E 11+50S		9	<0.1	10

SAMPLE NUMBER	ELEMENT UNITS	Pb PPM	Ag PPM	Au PPB
S1 L22E 12+00S		10	<0.1	10
S1 L22E 12+50S		8	<0.1	15
S1 L22E 13+00S		7	<0.1	10



1432

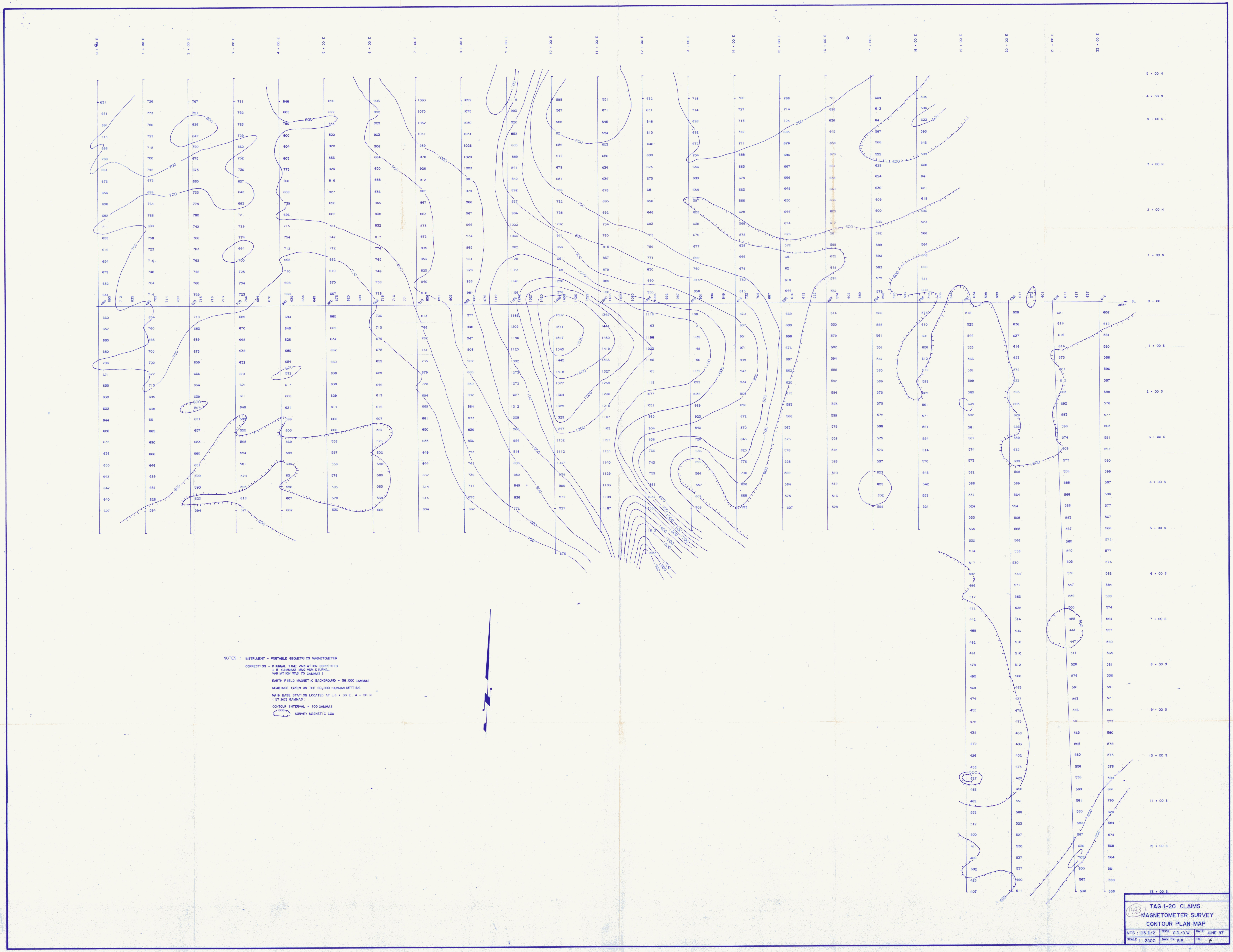
TAG I-20 CLAIMS

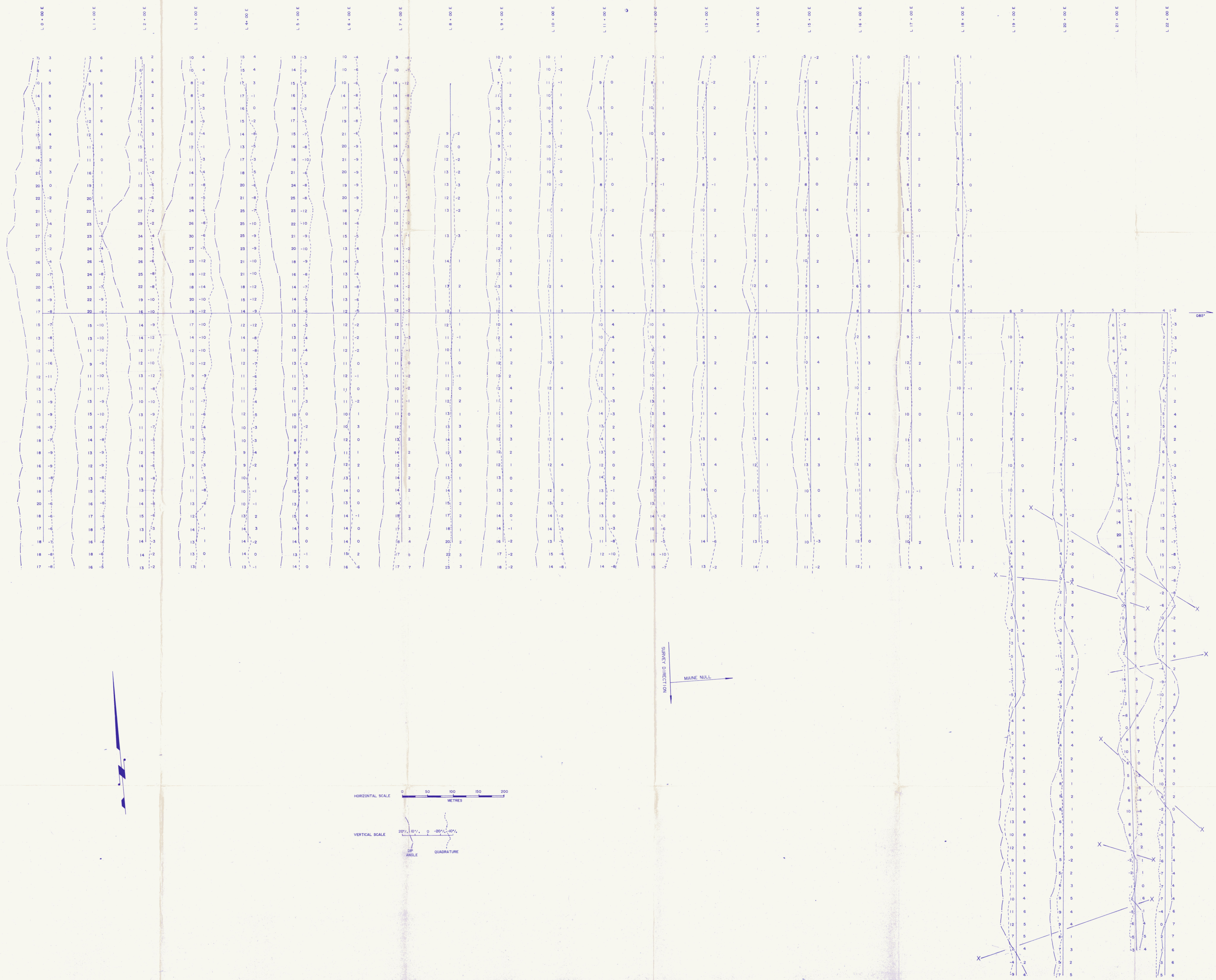
Au-Ag-Pb GEOCHEMISTRY

NTS: 105 D/2	TECH.: G.D.	DATE: JUNE 87
SCALE: 1:5000	DWN. BY: B.B.	FIG.: 5

091719

INTEGRAPHICS LTD.


NOTES : INSTRUMENT - PORTABLE GEOMETRICS MAGNETOMETER
CORRECTION - DIURNAL TIME VARIATION CORRECTED ± 5 GAMMAS(MAXIMUM DIURNAL VARIATION WAS 75 GAMMAS)
EARTH FIELD MAGNETIC BACKGROUND = 58,000 GAMMAS
READINGS TAKEN ON THE 60,000 GAMMAS SETTING
MAIN BASE STATION LOCATED AT L 6 + 00 E, 4 + 50 N (57,903 GAMMAS)
CONTOUR INTERVAL = 100 GAMMAS
600
SURVEY MAGNETIC LOW
1433
TAG I-20 CLAIMS
MAGNETOMETER SURVEY
CONTOUR PLAN MAP
NTS : 105 D/2
TECH.: G.D./D.W.
DATE: JUNE 87
SCALE 1 : 2500
DWN. BY: B.B.
FIG.: 7



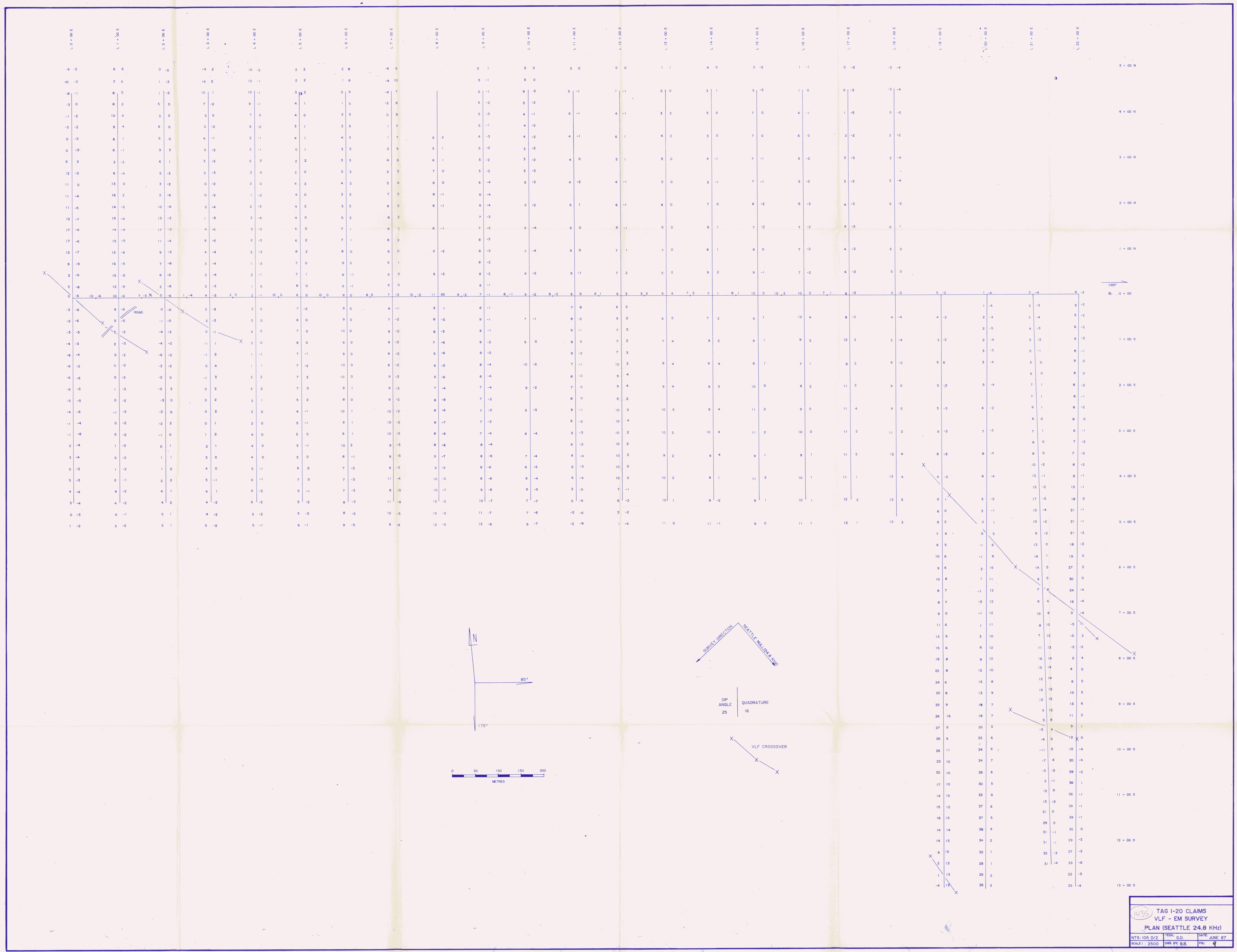
1434

TAG I-20 CLAIMS
VLF - EM SURVEY

PROFILE PLAN (MAINE 24.0 KHz)

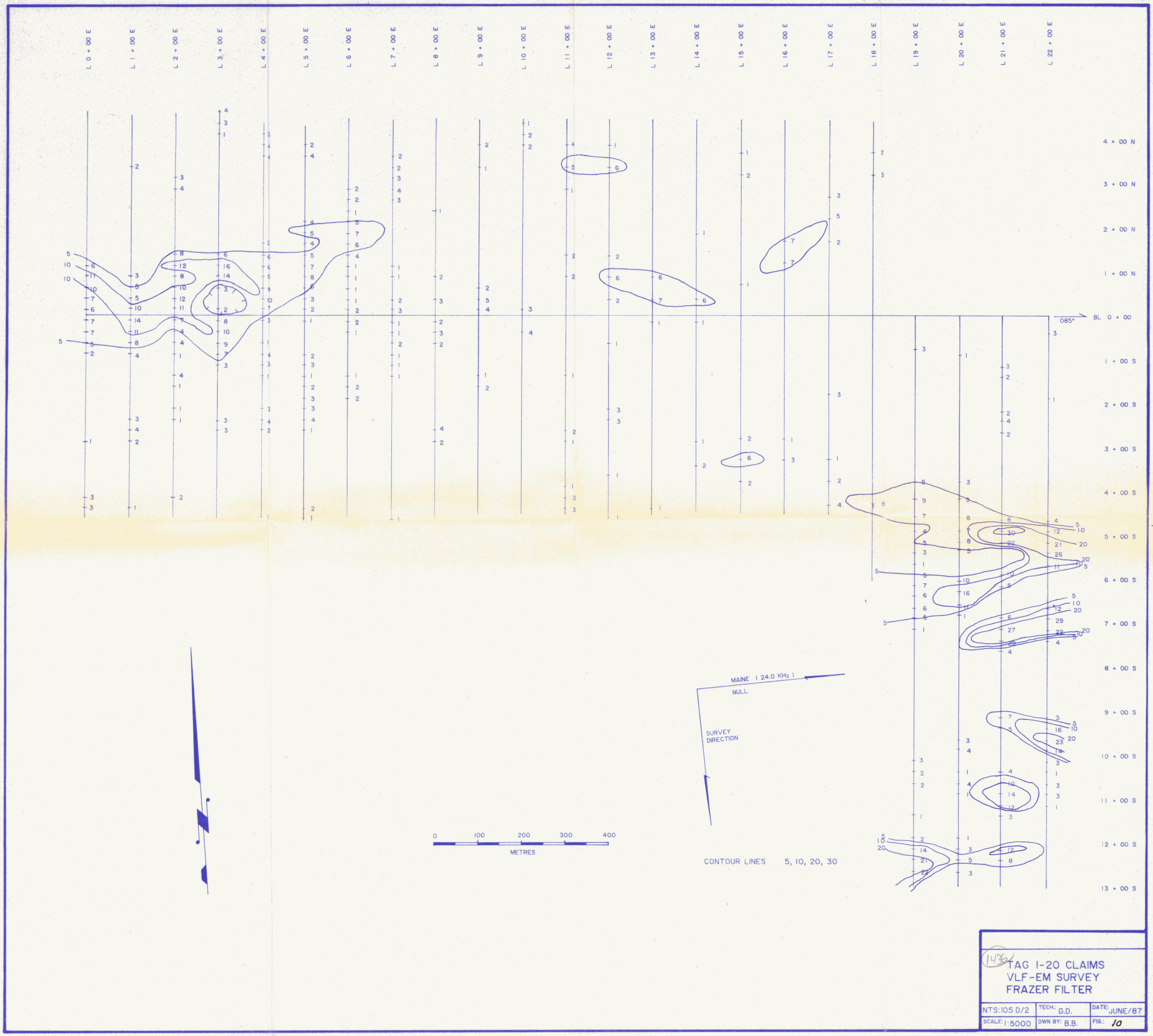
NTS:105 D/2	TECH.: G.D.	DATE: JUNE 87
SCALE: 1 : 2500	DWN. BY: B.B.	FIG.: 8

001719



ROAD
BL. 0 + 00
085°
N
65°
175°
SURVEY DIRECTION
SEATTLE NAA (24.8 KHz)
DIP ANGLE 25
QUADRATURE 16
VLF CROSSOVER
0 50 100 150 200
METRES
TAG 1-20 CLAIMS
VLF - EM SURVEY
PLAN (SEATTLE 24.8 KHz)
NTS: 105 D/2
SCALE 1 : 2500
TECH: G.D.
DWG. BY: B.B.
DATE: JUNE 87
FIG: 9

1435
061719



TAG 1-20 CLAIMS
VLF-EM SURVEY
FRAZER FILTER
NTS: 105 D/2
TECH.: G.D.
DATE: JUNE/87
SCALE: 1:5000
DWN BY: B.B.
FIG.: 10
1436
MAINE (24.0 KHz)
NULL
SURVEY DIRECTION
CONTOUR LINES 5, 10, 20, 30
METRES
0 100 200 300 400
BL 0 + 00
085°