

GEOLOGICAL, GEOPHYSICAL &  
GEOCHEMICAL REPORT  
ON THE

SUB-MINING RECORDER  
RECEIVED  
JUL 19 1968  
M.R. # ..... \$ .....  
VANCOUVER, B. C.

LAKE MINERAL CLAIM

FTR No. 1 - 7

JEAN 1 - 12

LAKE 2, 3

KEN 1, 3 - 11

HILL 1, 2

FRANK 1 - 6

#17310

#21369 - 21375

#13101 - 13104;

13426 - 13429

22924, 22927

#24670 - 24671

#22930 - 22939

#25156 - 25157

#22940 - 22945

MINERAL CLAIMS

IN THE

NANAIMO MINING DIVISION

20 Miles West of Port Hardy

50° 43' 00" North Latitude

127° 52' 00" West Longitude

924/12W

KODIAK MINES LTD.

Vancouver, B.C.  
July 15th, 1968

W.G. STEVENSON, P. ENG.

1610

1610

GEOLOGICAL, GEOPHYSICAL &  
GEOCHEMICAL REPORT  
ON THE

LAK MINERAL CLAIM	#17810
FTR No. 1 - 7	#21369 - 21375
JEAN 1 - 12	#18101 - 18104; 18426 - 18429 22924, 22927
LAKE 2, 3	#24670 - 24671
KEN 1, 3 - 11	#22930 - 22939
HILL 1, 2	#25156 - 25157
FRANK 1 - 6	#22940 - 22945

MINERAL CLAIMS

IN THE

NANAIMO MINING DIVISION

20 Miles West of Port Hardy

50° 43' 00" North Latitude  
127° 52' 00" West Longitude

KODIAK MINES LTD.

Vancouver, B.C.  
July 15th, 1968

W.G. STEVENSON, P. ENG.

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION	1
PROPERTY AND TITLE	1
LOCATION AND ACCESS	2
HISTORY	3
GEOLOGY	4
MINERALIZATION	6
TOPOGRAPHIC MAPPING	7
SURVEY	8
GEOCHEMICAL SURVEY	8
GEOPHYSICAL SURVEY	10
CONCLUSIONS	11

A P P E N D I X

A. Index Map	Scale	1" = 100 miles #1
B. Geological and Property Map	Scale	1" = 1 mile #2
C. Geological Sketch Map	Scale	1" = 500 feet #3
D. Geological Maps (4 sheets)	Scale	1" = 200 feet #4 #7
E. Geological Map	Scale	1" = 100 feet
F. Geological Map	Scale	1" = 50 feet
G. Geological Report - W.D. Tedlie - June 19th, 1968		
H. Geochemical Maps (4 sheets)	Scale	1" = 200 feet #6 #8
I. Geochemical Report - J.S. Scott - June 7th, 1968		

CONTINUED.....

**APPENDIX CONTINUED.....**

- J. Geophysical Maps (4 sheets) Scale 1" = 200 feet <sup>2</sup> 14-17**
- K. Data pertaining to Mineral Claims**
- L. Assay Certificates**
- M. Certificate of W.G. Stevenson, P. Eng.**



## INTRODUCTION

During January, 1968, I made an examination of mineralization that is exposed within a block of mineral claims located along the north and west sides of Nahwitti Lake, 220 miles northwesterly from Vancouver and 20 miles westerly from Port Hardy.

Geochemical sampling, geophysical surveying, prospecting and geological mapping was initiated under my direction on March 15th, 1968. This program continued until June 30th with a geologist and two assistants under the direct supervision of Mr. Pat Russell.

I have spent the periods April 27th - 28th; May 20th - 21st, and June 15th on the property.

## PROPERTY AND TITLE

Mr. Russell has staked and recorded a block of 40 mineral claims on the north and west side of Nahwitti Lake. These are the Lak; FTR 1 - 7; Jean 1 - 12, Lake 2, 3; Ken 1, 3 - 11; Hill 1, 2; Frank 1 - 6; Record numbers 17810; 21369 - 21375; 18101 - 18104, 18426 - 18429, 22924, 22927, 24670, 24671; 22930 - 22939; 25156, 22157; and 22940 - 22945.

While on the property I examined three sets of claim posts that were used to stake these mineral claims. These posts were of the proper size, were properly squared and the direction

to the next set of claim posts was marked by readily recognizable blazed lines. The claim posts that I examined were the Number 1 post of the FTR 1 and 2; the number 1 post of the Lake and Jean 3 & 4 and the number 2 posts of the Jean 1 & 2, and number 1 post of Jean 3 & 4. These posts were properly tagged and the tags were properly inscribed, and their position is shown on the attached map which is drawn to a scale of 1" = 500 feet.

As a result of my examination of these three claim posts, from my search of the records in the Department of Mines Recording Office in Vancouver and from my past experience with the prospector who accomplished the staking, I have concluded that the claims have been staked in accordance with the provisions of the Mineral Act of the Province of British Columbia, and are valid.

I have attached as appendix "K" a list of claims and the pertinent data shown on the A Forms retained by the B.C. Department of Mines.

#### LOCATION AND ACCESS

The claims held by Mr. Russell are centered over the west side of Nahwitti Lake, 20 miles west of the village of Port Hardy. They encompass a area of approximately three square miles.

Access to Nahwitti Lake can be gained by float plane

or by motor vehicle over an improved road which crosses the property and which connects Holberg and Port Hardy. Access across the claims can be accomplished by foot trail from the road or from the shore of Nahwitti Lake.

### HISTORY

Commencing about 1900 Vancouver Island was subjected to extensive prospecting and exploration. A number of gold, silver, lead, zinc and copper occurrences were discovered, and many of these have been developed and brought into production. In 1957 the Japanese opened a market for iron ore from British Columbia and the ore deposits of Coast Copper, Yreka and Empire Development at the north end of Vancouver Island were brought into production.

In 1963 the Geological survey of Canada compiled and released a set of airborne magnetic maps which extended over the northern part of Vancouver Island. These maps sparked renewed interest in the area and a number of companies and individuals acquired mineral claims, and initiated mineral exploration programs, which have continued to date.

Utah Construction Mining Co., a company with large claim holdings in this area, has been active since 1962, when they launched a major exploration program. In 1967 they initiated a major diamond drilling program and the results of

their drilling have remained a closely guarded secret. However under date of November 21st, 1967, officials of Utah Construction released a statement that they had developed 80 million tons of material grading over 0.5% copper and 0.025% MoS<sub>2</sub> and that underground testing would be accomplished.

In 1966 Falconbridge Nickel Mines Ltd. optioned a block of mineral claims over the north and west edge of Nahwitti Lake, and put down 5 pack sack diamond drill holes. Falconbridge terminated their option during the latter part of 1966.

During 1967 several hundred mineral claims have been located in the Nanaimo Mining Division at the northern end of Vancouver Island, and during 1967 and 1968 a number of exploration programs have been initiated in this area.

#### GEOLOGY

The coast line of Northern Vancouver Island and the area from Rupert Inlet southerly for 20 miles has been geologically mapped by members of the B.C. Department of Mines and by the Geological Survey of Canada. A preliminary geological map of this area has been published by the B.C. Department of Mines and Petroleum Resources. The remainder of the north end of Vancouver Island which encompasses the area held by Mr. Russell, has not been geologically mapped by personnel from the government agencies.

The oldest rocks in the Port Hardy area are a sequence

of volcanic basalts and interlayered limestone, all variably metamorphosed. These rocks are part of the Vancouver group which is of Triassic Age. The Vancouver group is subdivided into the Karmutsen volcanic formation, the oldest member, which is overlain by the Quatsino formation, a crystalline limestone horizon which is in turn overlain by the Bonanza Formation, the youngest member.

The Bonanza formation is composed of a series of thin-bedded argillites and limestone measures interbedded with volcanic tuffs and agglomerates. The rocks exposed on the property are volcanics and one or more limestone horizons with a thickness in excess of 20 feet. These rocks are probably those of the Karmutsen formation.

The attitude of Bedding in the sediments and layering in the volcanic series has been recognized at three localities. The strike varies from east west with a dip towards the south to north south with a dip towards the east. There is evidence of severe contortion and deformation.

An intrusive mass is exposed about  $\frac{1}{2}$  mile north of Nahwitti Lake, and along the southern and western edge of this lake.

An east west trending fault is projected through Nahwitti Lake which separates an intrusive mass on the south from the Vancouver Group rocks on the north.

A porphyry dike and associated shear zone is exposed on the Jean 1 and 2 and Lake mineral claims. This dike has produced a skarn zone up to 25 feet wide which can be traced for several hundred feet along the surface in an east west direction.

### MINERALIZATION

Two distinct types of mineralization have been exposed on the property. The first is copper iron sulfide with variable amounts of magnetite in a skarn zone. This skarn zone is associated with a narrow porphyry dike that is exposed near the contact between limestone and volcanic rocks. One skarn zone which averages 10 feet in width can be traced along the surface for a distance of 200 feet. Mineralization extends easterly an additional 400 feet and it may be continuous. While on the property I collected one sample across this zone over a six foot width which assayed trace gold, 0.36 oz. silver and 1.63% copper. The location of this sample is shown on the attached map. A parallel zone is exposed toward the south.

The second type of mineralization recognized on the property is lead zinc sulfide which occurs as a limestone replacement, and which contains variable silver values. I collected two samples of this mineralization separated by 250 along strike. The first over a width of 1½ feet assayed trace gold; 5.44 oz. silver; 0.07% copper; 3.26% lead and 6.46% zinc.

The second sample taken from a 4 inch stringer of high grade galena within a structure that is about 9 feet wide assayed trace gold; 130.04 oz. silver; 0.04% copper; 53.24% lead and 9.18% zinc.

While the structural pattern is such that the samples might have been collected from the same shear zone, cover masks the intravening geology. Other occurrences of lead zinc which have not been tested have been reported from the property.

On May 23rd, 1968 a geologist was engaged to assist in prospecting and mapping the geology on the property and to specifically investigate areas that hold geochemical and geophysical attraction. A report summarizing his observations and a set of four geological maps drawn to a scale of 1" = 200 feet are attached marked Appendix "G" and "D".

You will also find attached marked Appendixes "B", "C", "E" and "F" maps to show the geology and mineralization of this property in relation to the northern part of Vancouver Island.

#### TOPOGRAPHIC MAPPING

A topographic map drawn to a scale of 1" = 500 feet and with a contour interval of 50 feet has been compiled from existing air photographs. This map was enlarged to a scale of 1" = 200 feet and divided into four segments. The results of the work that has been accomplished has been posted onto these maps.

SURVEY

Three base lines marked A, B and C have been established across the claim block. Twenty-one picket lines have been surveyed from Base line A, sixteen from base line B, and eleven from base line C. The picket lines are spaced 400 feet apart and along each of these lines stations have been flagged at 100 foot intervals. A total of 16 miles of picket lines have been run out from base line A, 9 miles of picket lines from base line B and 6 miles from base line C.

GEOCHEMICAL SURVEY

Mr. Pat Russell, an experienced Prospector formerly employed by Falconbridge Nickel, was in charge of the soil sampling. His crew included Mr. Pat Egan who gained experience in soil sampling with American Metals Climax and with Bethey.

The samples were collected with an auger at an average depth of 1 foot. The soil samples have been collected from the B horizon.

Approximately 1,000 soil samples have been collected. These samples have been taken at 200 foot intervals along the picket lines. All of these have been assayed for copper and lead and 700 have been assayed for zinc. Determination of the silver, nickel, molybdenum and cobalt content has been made on 400 samples. These samples were partially dried in the field



then dried and screened and assayed by hot HCL extraction by T.S.L. Laboratories, 325 Howe Street, Vancouver, B.C.

An analysis of the assay results has shown that up to 90 parts per million copper; 100 zinc, 80 lead and 4 silver should be considered background. Anything over these amounts is anomalous. With the statistics currently available it does not appear that molybdenum, nickel or cobalt assays contribute data useful in the search for concealed mineral deposits.

I have prepared a map, marked Appendix "H", contouring the areas where the copper content in the soil is anomalous. The main area of interest is immediately north of the shore of Nahwitti Lake. It has anomalous zinc associated with the copper content in the soil over a length of 3200 feet and a width varying up to 800 feet. This anomaly is shown on the geochemical map sheet marked number 3 which accompanies this report.

Other areas showing sporadic high metal content over 2 or 3 contiguous samples have been noted. In general it would seem that the metal content in the soil at the higher elevation is not anomalous. This might be caused from deep overburden.

I have asked J.S. Scott, Consulting Geologist, to review this survey. His report dated June 7th, 1968 is attached as Appendix "I".

GEOPHYSICAL SURVEY

A sharpe MF 1 magnetometer has been employed to test the magnetic responses on the property. Instrument readings have been recorded at 100 foot intervals along the picket lines.

The magnetic readings were taken by and under the direct supervision of Mr. Pat Russell. A check reading at a base station was made at periodic intervals at least twice each day.

Approximately 1500 magnetic readings have been recorded. These readings are posted onto the attached geophysical maps marked Appendix "J". Magnetic highs and lows have been contoured.

A pronounced magnetic high located  $\frac{1}{2}$  mile north of Nahwitti Lake was traced over an area 2,000 feet by 300 feet. Outcrops in this area are limited, however exposures of basic volcanic and intrusive rock were observed and this rock type might account for the magnetic high. The geochemical response within the high magnetic anomaly was negligible however toward the northwest and contiguous, a small copper anomaly has been outlined. This magnetic anomaly is shown on sheet number 1 of the geophysical maps which are attached.

An area of low magnetic intensity was discovered on five picket lines positioned on the north edge of Nahwitti

Lake. This magnetically anomalous condition coincides with the location of the geochemical anomaly. The location, dimensions and intensity of this anomaly is shown on sheet number 3 of the geophysical maps that accompany this report.

Other areas of low magnetic intensity were observed and their locations noted.

### CONCLUSIONS

1. The geochemical survey has outlined an area on the north shore of Nahwitti Lake where the copper content in the soil is anomalous.
2. In this area high zinc and lead content in the soil coincides with the high copper content.
3. The position of a magnetic low coincides with the area of high geochemical copper content in the soil.
4. Within the confines of these anomalies bedrock outcrop is less than 10%.
5. The outcrops that were found within the anomalous area are for the most part limestone with minute amounts of disseminated sulphides and with moderate amounts of blue and green copper oxides coating the limestone.

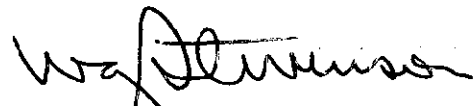
6. Some narrow irregular intrusive porphyry dikes and sills were found associated with the limestone in the vicinity of the geochemical anomaly. The porphyry dikes that I examined were unmineralized.

7. The main area of interest lies between a large intrusive mass well exposed on the south side of Nahwitti Lake and an intrusive mass poorly exposed near the northern limits of the claim block.

8. The results of the past exploration suggest that test pitting, dozer stripping and diamond drilling are required.

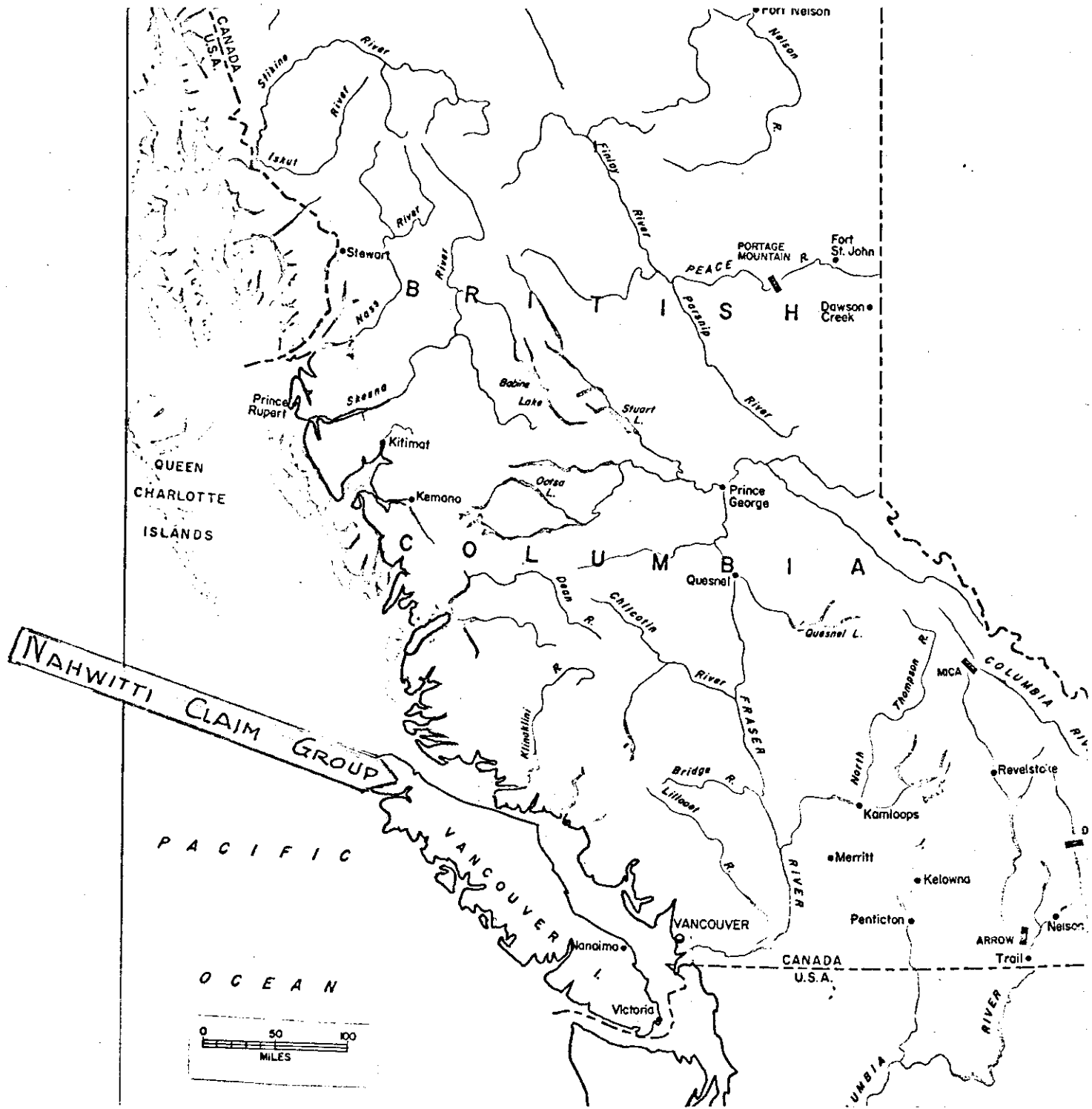
Respectfully submitted,

W.G. STEVENSON & ASSOCIATES LTD.



W.G. STEVENSON, P. ENG.

Vancouver, B.C.  
July 15th, 1968



INDEX MAP  
 Showing Location of  
 NAHWITTI CLAIM GROUP  
 Nanaimo Mining Division  
 British Columbia  
 Scale 1" = 100 Miles

GEOLOGICAL REPORT  
KODIAK MINES NAHWITTI LAKE PROPERTY  
for Mr. W. G. Stevenson, Consulting Geologist

INTRODUCTION AND GENERAL GEOLOGY

This report is based on information gathered during an examination of this property from May 24 to June 17, 1968, supplemented by data collected earlier by Falconbridge Nickel Mines Ltd., and prospectors. Geologic mapping was done on a scale of 1 inch equals 200 ft., with details at 1 inch equals 50 ft. Reference will also be made to the results of geochemical (soil sampling) and magnetometer surveys.

The ground surface rises steeply from the north shore of Nahwitti Lake to an elevation 600 to 700 ft. above the lake, then slopes gently toward the north and northwest. The entire area is covered with virgin forest. The uplands north of Nahwitti Lake are swampy, areas of trees and thick underbrush are interspersed with open muskeg. Overburden appears to be thick, particularly on the uplands.

Plutonic rocks, ranging in composition from quartz monzonite to diorite intrude basic volcanics and underlie the northern and extreme southern parts of the property. The basic volcanics occupy the areas north and west of Nahwitti Lake. A band of limestone, interbedded with the

INTRODUCTION AND GENERAL GEOLOGY - Cont'd.

volcanics, outcrops on the hillside along the north shore of Nahwitti Lake and extends west across Hepler Creek. Dikes of rhyolite and latite intrude the other rock types.

DESCRIPTIONS OF ROCK UNITS. - PLUTONIC ROCKS

The best exposures of these were found in road cuts and along streams. They include quartz monzonite, granodiorite, quartz diorite, and diorite. All are massive, with typical granitic texture, medium-grained, and gray in color. The granodiorite shows a slight pinkish alteration. A small amount of assimilation appears to have occurred along the intrusive contacts between these plutonics and the basic volcanics. A few small pegmatitic and aplitic stringers up to 2 inches wide were observed in the basic volcanics along these contacts.

BASIC VOLCANIC ROCKS

The best exposures of this unit occur on the upper part of the hillside north of Nahwitti Lake. A number of different rock types are grouped in this unit, all showing differences in alteration and texture. Some agglomerates are interbedded with the flows. The most common rock type is aphonitic, often amygdaloidal and frequently shows epidote,

BASIC VOLCANIC ROCKS - Cont'd.

and/or chlorite-octinolite alteration. Fresh surfaces are greenish black or grayish-black, weathering to dark brown. A less abundant type appears to be less altered, and shows a diabasic texture. These rocks may be either portions of unusually thick flows or shallow intrusives (i.e. dikes and/or sills). However, a dike cutting the limestone is altered. Extensive epidotic alteration in the volcanics occurs near their contacts with the limestone. Some baking of the volcanics has occurred near their contacts with the plutonic intrusions. Other such contacts show metamorphism of the volcanics to amphibolite.

LIMESTONE

The limestone is usually dark gray to black and aphanitic, with black carbonaceous nodules and streaks. Near its upper contact with the volcanics, the limestone becomes lighter colored and coarser-grained. At the western end of Nahwitti Lake, a skarn zone approximately 200 ft. wide and 700 ft. long has developed along a contact between limestone and rhyolite. The skarn is chiefly epidote, with garnet, diopside, magnetite, and sulphides.

Bedding is very poorly developed in the limestone. Some outcrops show an incipient brecciation, with the forma-



LIMESTONE - Cont'd.

tion of a network of hairline calcite veinlets. A few calcite veins up to 6 inches wide are present. Caves occur in the limestone.

RHYOLITE AND LATITE

Rhyolite dikes intrude both limestone and basic volcanics. The dike rock is very light gray, or brownish-gray, aphanitic, and flinty. No quartz phenocrysts were observed. In some localities, the rhyolite shows rounded, altered patches, probably chloritic like haloes, surrounding pyrite. A similar alteration, also accompanied by pyrite, was noted along fractures in rhyolite.

A dike of "latite" intrudes limestone on the north shore of Nahwitti Lake. The dike rock is soft, light, yellowish to light olive-green, and appears to be weathered or highly altered.

STRUCTURE

Bedding is very obscure in both limestone and basic volcanics, and the contact between the two rock types is not sufficiently well exposed for reliable attitudes to be obtained, hence the configuration of folding could not be determined.

STRUCTURE - Cont'd.

Faults are present, and all appear to post-date metamorphism. These faults are indicated in outcrop by crush zones, sandy gouge, and calcareous cement. Slickensides are not developed well enough for determination of the direction of movement. In plan, most faults north of Nahwitti Lake show an apparent right hand component of movement, and a downward component on the eastern sides.

MINERALIZATION

Galena and sphalerite, with minor pyrite and chalcopryrite, and possibly tetrahedrite, occur in skarn described above.

A vein in limestone is situated 250 ft. south of the west end of the skarn zone. This vein has a width of 2 ft. and has been traced, approximately 200 ft. contains galena, sphalerite, as lenses and disseminations in silicified limestone. Minor chalcopryrite accompanies the galena and sphalerite.

Small amounts of disseminated pyrite are widespread in the basic volcanics. Lesser amounts of chalcopryrite occasionally accompany the pyrite.

An area of anomalously high concentration of copper in soil, 700 ft. wide and 1300 ft. long was found on the

MINERALIZATION - Cont'd.

hillside north of Nahwitti Lake. This anomaly correlates with the area underlain by limestone. Local copper mineralization is present in some parts of the anomalous area. This consists of small amounts of disseminated chalcopyrite in limestone, and occasionally in veinlets. Thin malachite stains on outcrop surfaces and along fractures are associated with disseminated chalcopyrite in limestone.

Within this anomalous area, estimated to cover about 735,000 square feet, approximately 88% of the surface is overburden.

Other smaller anomalous zones have been located, but have not been prospected to date (June 18, 1968) except for one associated with the mineralized skarn. These other anomalous zones show lower concentrations of copper and are of smaller areal extent. The largest covers an area approximately 700 ft. by 350 ft.

Trenching is currently (June 18, 1968) underway in this anomalous area. A pit in the vicinity of a 10,000 ppm. cu. sample opened a showing as described above.

MAGNETIC SURVEY

A magnetic anomaly was found approximately 800 ft. north of Nahwitti Lake, and 1500 ft. west of the eastern

MAGNETIC SURVEY - Cont'd.

boundary of the property. Magnetic intensities of plus 410, 700, 600, 2600, and 500 gammas were recorded in this vicinity (negative or very low positive readings are general through other parts of the property). The anomalous area has a length of at least 1200 ft., and a width of 200 ft. Bedrock in this anomalous area was found to be aphanitic amygdaloidal volcanics and "volcanics" with a diabasic texture. The latter type was found to be magnetic. The relative proportions of the two, and percentage of ground surface occupied by outcrop are unknown. Two of the high readings were obtained on outcrops of the diabasic textured volcanics, of large aerial extent, others on stations on overburden with no outcrop within at least 200 ft.

APPENDIX

The above refers only to the observed facts. The following concerns certain hypotheses:

Structure:

The trend of the upper limestone-volcanic contact suggests a broad fold, which may be either a syncline plunging steeply toward the south, or an anticline plunging north at a very shallow angle. If the latter is the case, and the intrusions to the north were the source of mineralization, the following picture emerges. (In this respect, Giant

APPENDIX (Structure) - Cont'd.

Explorations, on the south side of Nahwitti Lake has mineralization in a similar geologic setting as Kodiak, but less Cu. This suggests a possible temp. zoning with Kodiak nearer the source?).

The volcanics may have acted as a relatively impermeable cap, with mineralizers moving through the limestone, and with leaks through fractures in the volcanics to produce small mineralized veins, as suggested by small anomalies on the upland.

The role of dikes is another factor - they may act either as channelways or dams for mineralizers. (Pyrite in Rhyolite?) No definite evidence of either has been recognized.

The role of groundwater, etc.

The limestone along the hill north of Nahwitti Lake is cavernous. Surface water is scarce, along the hillside in the limestone area except for a few springs along gouge zones. Water seepages over outcrops are common in the volcanics. There is probably considerable movement of ground water in the limestone area.

Faults.

Faulting seems to post-date mineralization. Sul-

APPENDIX (Faults) - Cont'd.

phides are no more abundant in fault zones than in the solid rock in general.

W. D. Tedlie,  
Geologist

*W. D. Tedlie*  
*per W. D. Tedlie*

June 19, 1968

J. S. SCOTT  
CONSULTING GEOLOGIST

402 WEST PENDER STREET  
VANCOUVER 3  
BRITISH COLUMBIA

June 7, 1968.

Mr. W. G. Stevenson,  
Consulting Geologist,  
475 Howe Street,  
Vancouver 1, B. C.

Dear Sir:

RE KODIAK MINES LIMITED --- GEOCHEMICAL SURVEY

As requested I have reviewed the results of a detailed soil survey done under your direction on the property of Kodiak Mines Limited, at Mahwitti Lake, Port Hardy area, B. C.

The soil samples taken by your crew have been determined for copper, zinc, lead, silver, molybdenum, cobalt and nickel. Results of these determinations plotted at a scale of 1" -- 200' on topographic maps and a histogram depicting the normal and anomalous distribution of values for each metal, were made available for this study. The writer visited the area briefly on May 18.

An examination of the histograms suggests the following ranges of normal, possibly anomalous or threshold and probably anomalous metal content. Location of the probably anomalous samples are noted in each case.

Copper

Normal 0 to 90 p.p.m.; possibly anomalous  
90 - 200 p.p.m.; probably anomalous >200  
p.p.m.

13 samples are in the >200 p.p.m. range as follows:

	<u>LINE</u>	<u>FROM</u>	<u>TO</u>	<u>NO. OF SAMPLES</u>
	A 40 E	24S	30s	4
	A 48 E	22S	28s	4
	A 56 E	22S		1
	A 60 E	24S		1
	A 64 E	18S		1
	A 72 E	18S		1
	A 80 E	14S		1

Zinc Normal 0 - 100 p.p.m.; possibly anomalous 100 - 200 p.p.m.; probably anomalous > 200 p.p.m.  
6 samples fell in the > 200 p.p.m. range as follows:

	<u>LINE</u>	<u>FROM</u>	<u>TO</u>	<u>NO. OF SAMPLES</u>
	A 32 E	32S		1 (710 p.p.m.)
	A 40 E	26S		1 (1140 p.p.m.)
	A 48 E	28S		1 (220 p.p.m.)
	A 52 E	20S	22s	2 (225, 235)
	A 72 E	22S		1 (350 p.p.m.)

Lead Normal 0 - 80 p.p.m.; possibly anomalous 80 - 160 p.p.m.; probably anomalous > 160 p.p.m.  
4 samples fell in > 160 range.

	<u>LINE</u>	<u>FROM</u>	<u>TO</u>	<u>NO. OF SAMPLES</u>
	A 32 E	32S		1 (410 p.p.m.)
	A 40 E	26S		1 (250 p.p.m.)
	A 72 E	22S		1 (215 p.p.m.)
	A 72 E	16N		1 (208 p.p.m.)

Silver Normal 0 - 4.0 p.p.m.; possibly anomalous 4.0 - 10.0 p.p.m. Probably anomalous > 10.00 p.p.m.  
1 sample fell in the > 10 range.

	<u>LINE</u>	<u>FROM</u>	<u>TO</u>	<u>NO. OF SAMPLES</u>
	A 40 E	26S		1 (31.0 p.p.m.)

Molybdenum Normal 0 - 3.5 p.p.m.; possibly anomalous 3.5 - 10.0 p.p.m. Probably anomalous > 10.0 p.p.m.  
No samples fell in the > 10.0 range.

Cobalt Normal 0 - 80 p.p.m. No anomalous samples.

Nickel Normal 0 - 90 p.p.m. No anomalous samples.

Summary Anomalous copper is indicated within a limited vertical range along the steep north slope of Nahwitti Lake. The trend is strongly indicated by 4 samples each on lines A 40 E and A 48 E, (800 feet) and suggested by one sample each on lines A 56 E, 60 E, 64 E, 72 E, and 80 E.



PAGE 3

Anomalous zinc is indicated in a similar zone from A 32E to A 72E, but slightly lower down, suggesting the greater mobility of zinc. Anomalous lead on lines A 32E and A 40 E co-incides with the anomalous zinc samples.

The location of the zone suggested by copper, zinc, and lead would indicate, in my opinion, that it is reflecting the skarn zone which outcrops above and slightly west, or the possible eastward extension of this zone.

No other areas of mineralization appear to have been reflected by the survey.

Yours very truly,

A handwritten signature in cursive script, appearing to read "J. S. Scott".

J. S. Scott, P. Eng.

<u>CLAIM NAME</u>	<u>RECORD NO.</u>	<u>TAG NO.</u>	<u>RECORDING DATE</u>
Lak	17810	574644	March 29, 1965
F.T.R. No. 1	21369	828349	Nov. 30, 1967
F.T.R. No. 2	21370	828350	Nov. 30, 1967
F.T.R. No. 3	21371	828351	Nov. 30, 1967
F.T.R. No. 4	21372	828352	Nov. 30, 1967
F.T.R. No. 5	21373	828353	Nov. 30, 1967
F.T.R. No. 6	21374	828354	Nov. 30, 1967
F.T.R. No. 7	21375	575370	Nov. 30, 1967
JEAN No. 1	18101	574629	July 20, 1965
JEAN No. 2	18102	574630	July 20, 1965
JEAN No. 3	18103	574631	July 20, 1965
JEAN No. 4	18104	574632	July 20, 1965
JEAN No. 5	18426	584266	Feb. 28, 1966
JEAN No. 6	18427	584267	Feb. 28, 1966
JEAN No. 7	18428	584268	Feb. 28, 1966
JEAN No. 8	18429	584269	Feb. 28, 1966
JEAN No. 9	22924	646397	Feb. 1, 1968
JEAN No. 10	22925	646398	Feb. 1, 1968
LAKE No. 2	24670	886429	May 2, 1968
LAKE No. 3	24671	886430	May 2, 1968
KEN No. 1	22930	886401	Feb. 1, 1968
KEN No. 3	22931	886403	Feb. 1, 1968
KEN No. 4	22932	886404	Feb. 1, 1968
KEN No. 5	22933	886405	Feb. 1, 1968

<u>CLAIM NAME</u>	<u>RECORD NO.</u>	<u>TAG NO.</u>	<u>RECORDING DATE</u>
KEN No. 6	22934	886406	Feb. 1, 1968
KEN No. 7	22935	886407	Feb. 1, 1968
KEN No. 8	22936	886408	Feb. 1, 1968
KEN No. 9	22937	886409	Feb. 1, 1968
KEN No. 10	22938	886410	Feb. 1, 1968
KEN No. 11	22939	886411	Feb. 1, 1968
HILL No. 1	25156	886449	
HILL No. 2	25157	886450	
FRANK No. 1	22940	886413	Feb. 1, 1968
FRANK No. 2	22941	886412	Feb. 1, 1968
FRANK No. 3	22942	886415	Feb. 1, 1968
FRANK No. 4	22943	886414	Feb. 1, 1968
FRANK No. 5	22944	886417	Feb. 1, 1968
FRANK No. 6	22945	886416	Feb. 1, 1968
FRANK No. 7	22946	886419	Feb. 1, 1968
FRANK No. 8	22947	886418	Feb. 1, 1968

1 complete set of Assay Certificates  
from T.S.L. Laboratories Ltd, 325 Howe  
Street, Vancouver, B.C. is retained in  
the office of W.G. Stevenson, P.Eng.,  
Consulting Geologist, 509 - 475 Howe  
Street, Vancouver 1, B.C.

C E R T I F I C A T E

I, William G. Stevenson, do hereby certify:

1. That I am a Consulting Geological Engineer with offices at Suite 509 Stock Exchange Building, 475 Howe Street, Vancouver, B.C.
2. That I am a graduate of the University of Utah, 1946, with a Bachelor of Science Degree.
3. That I am a registered Professional Engineer in the Association of British Columbia.
4. That I have practised my profession for twenty-two years.
5. That I have no direct, indirect or contingent interest in the claims held by Nahwitti Lake Claim Group nor do I intend to receive any interest.
6. That this report dated July 15th, 1963 is based on a study of the geological literature that has been published on this area and on the data collected during the period March 15th to June 30th, 1963 by prospectors and Geologists working under my direction and from observations made on the property during my visits in January, April, May and June, 1963.

DATED AT Vancouver, British Columbia, this 15th day of July, 1963.

W.G. STEVENSON & ASSOCIATES LTD.  
Consulting Geologists

*W.G. Stevenson*  
*W.G. Stevenson*

---

W.G. STEVENSON, P. ENG.

DOMINION OF CANADA:  
PROVINCE OF BRITISH COLUMBIA.  
To Wit:

In the Matter of

The Geochemical Survey, the Geophysical Survey and the Geological mapping over the Mineral Claims near Nahwitti Lake called the F.T.R. group in the Nanaimo Mining Division held by Kodiak Mines Ltd. and the map and Report preparation covering this work.

I, WILLIAM G. STEVENSON, P. ENG.  
Consulting Geologist  
509 - 475 Howe Street  
of Vancouver 1, B.C.

in the Province of British Columbia, do solemnly declare that

A geochemical sampling program, a magnetometer survey and geological mapping has been accomplished over the area encompassing the F.T.R. claim group.

A topographic map has been compiled by Lockwood Survey Corporation to a scale of 1" = 200 feet. The geochemical assay results, the magnetometer responses and the geology are posted onto these maps.

A report describing this exploration program with attached geochemical, geophysical and geological maps accompanies this Statutory Declaration.

The cost of the program has been: \$20,822.00

Construction and maintenance of Camp	\$ 5,929.83
Wages and Expenses - 3 men	6,488.92
Geochemical assaying	2,438.69
Supervision & Engineering and geological mapping	5,965.01
	<u>\$20,822.45</u>

240370

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the *city*  
of *Vancouver*, in the  
Province of British Columbia, this *19<sup>th</sup>*  
day of *July*, *1968*, A.D.

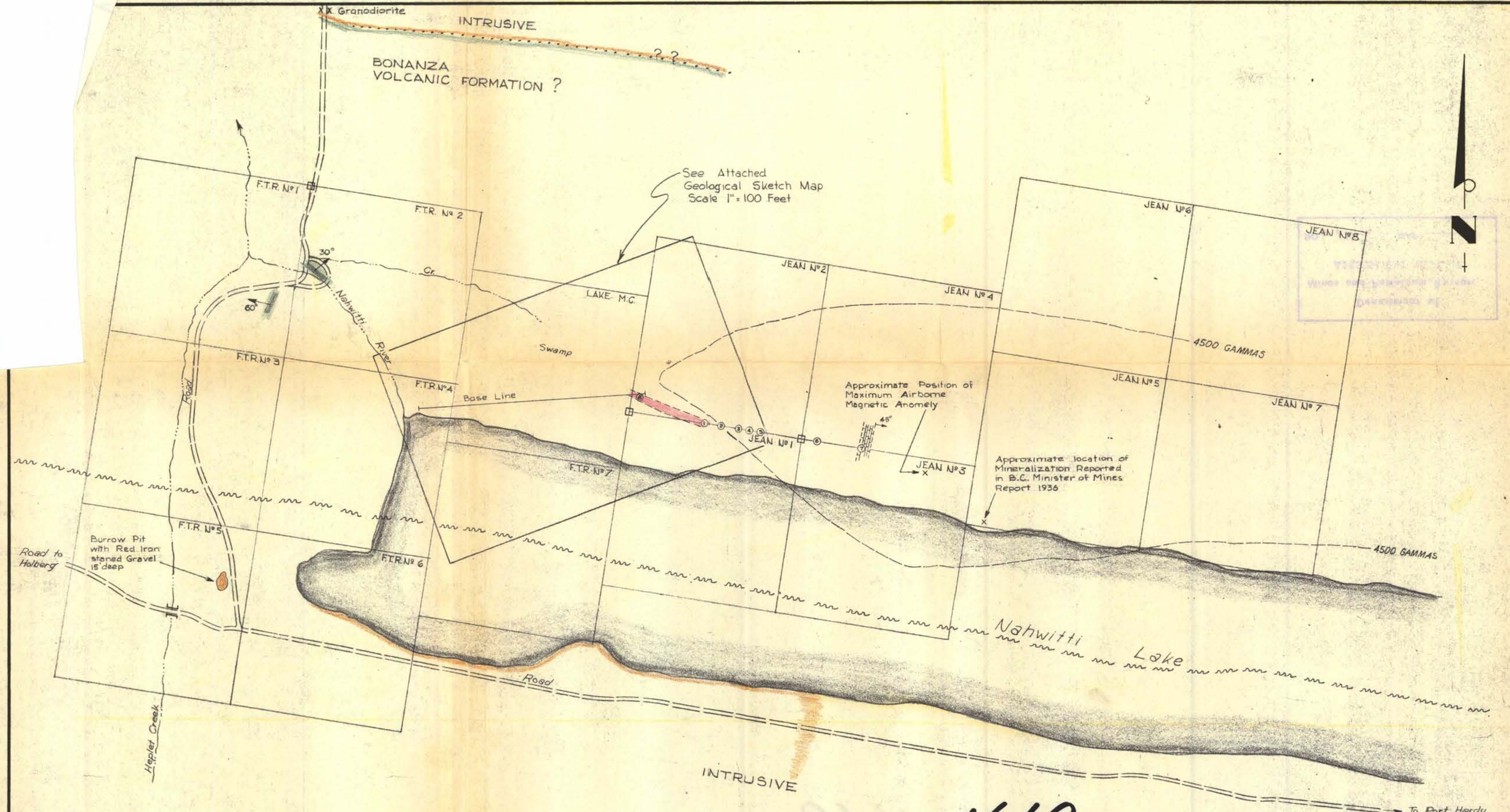
*W. G. Stevenson*

*L. Strickler*  
A Commissioner for taking Affidavits for British Columbia or  
A Notary Public in and for the Province of British Columbia.

★ 0

Sub-mining Recorder





INTRUSIVE

1610

To Port Hardy

- ⊙ Rock Specimen
- Outline of 4500γ from Airborne Magnetic Maps
- ~ Fault
- Claim Posts Examined

LEGEND

- Vancouver Group
  - Bonanza Volcanic Limestone & Volcanic
  - Quatsino Limestone
  - Karmutsen Volcanic
- Intrusive
- Rhyolite Dike

APPENDIX C *W.G. Stevenson*

**NAHWITTI LAKE GROUP**

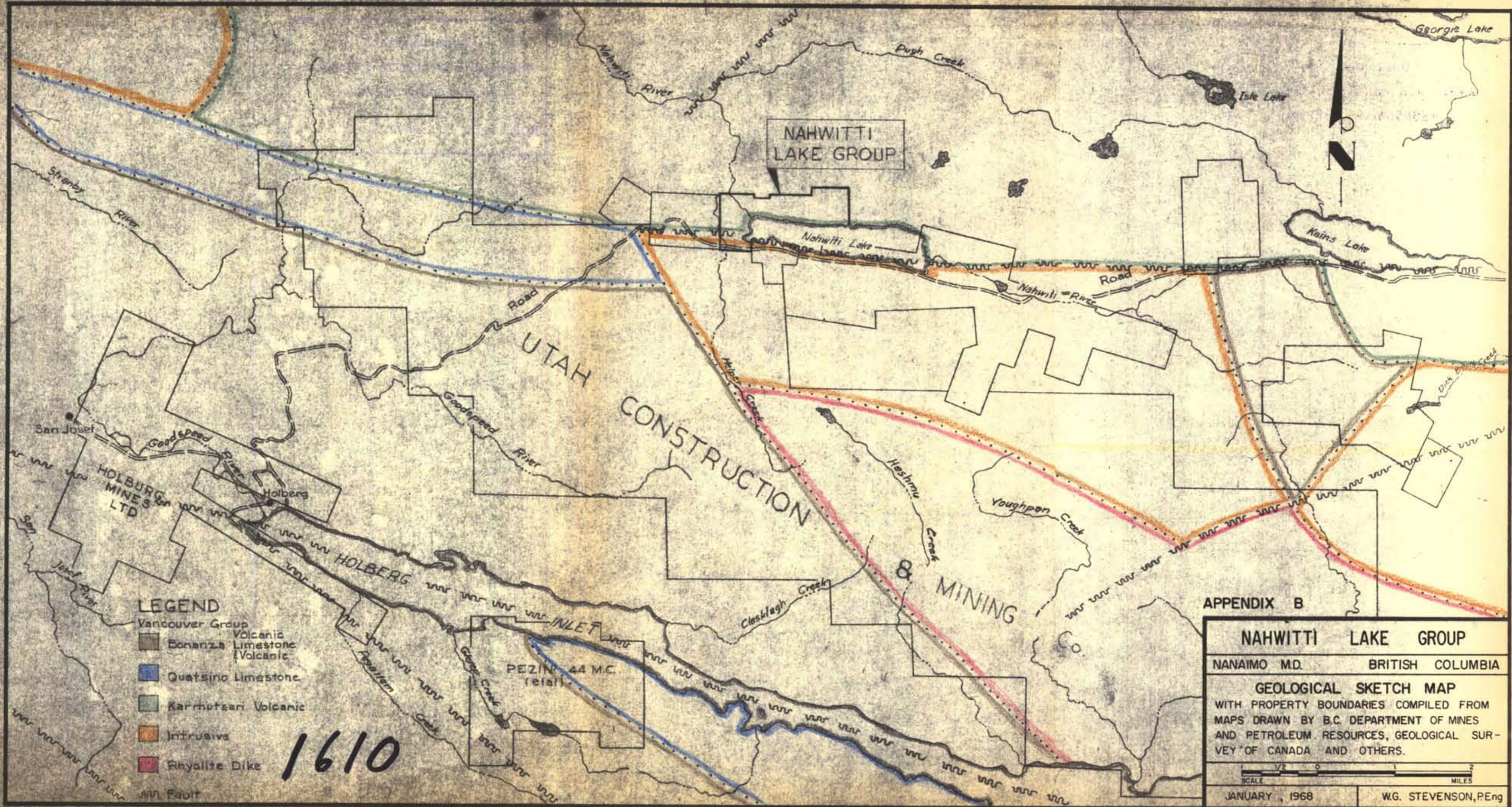
NANAIMO M.D. BRITISH COLUMBIA

**CLAIMS & GEOLOGY MAP**

BASED ON INFORMATION FROM B.C. DEPARTMENT OF MINES, GEOLOGICAL SURVEY OF CANADA, FALCONBRIDGE NICKEL MINES, MR. F.T. RUSSELL, W.G. STEVENSON AND OTHERS

JANUARY, 1968 W.G. STEVENSON, Eng







FAR LAKE

1250

BASELINE A

BASELINE B

x1194

X1285

1000

750

000'

1250

750

16

20

24

CONTACT PROBABLY ACCURATE 100' - 200'

VOLC. SPINDLERS

PELSITIC CLIP-PAN-CR. BANDS IN VOLC.

GRANITIC & VOLC. BOULDERS

VOLCS. AMYGDALOIDAL

48 EPIDOTE ALT. 14

CONTACT ASSUMED - THICK OVERBURDEN

507# 1370

QTZ. DIORITE WHITE STR.

SHEAR CRUSH ZONE 3' WIDE

GRANODIORITE

VOLCS. BAKED SED?

SHEAR - 1/2' CRUSH ZONE

CRUSH ZONE

CONTACT ASSUMED

GRANODIORITE

VOLCS. BAKED SED?

SHEAR - 1/2' CRUSH ZONE

HT. DIORITE MASS

CRUSH ZONE

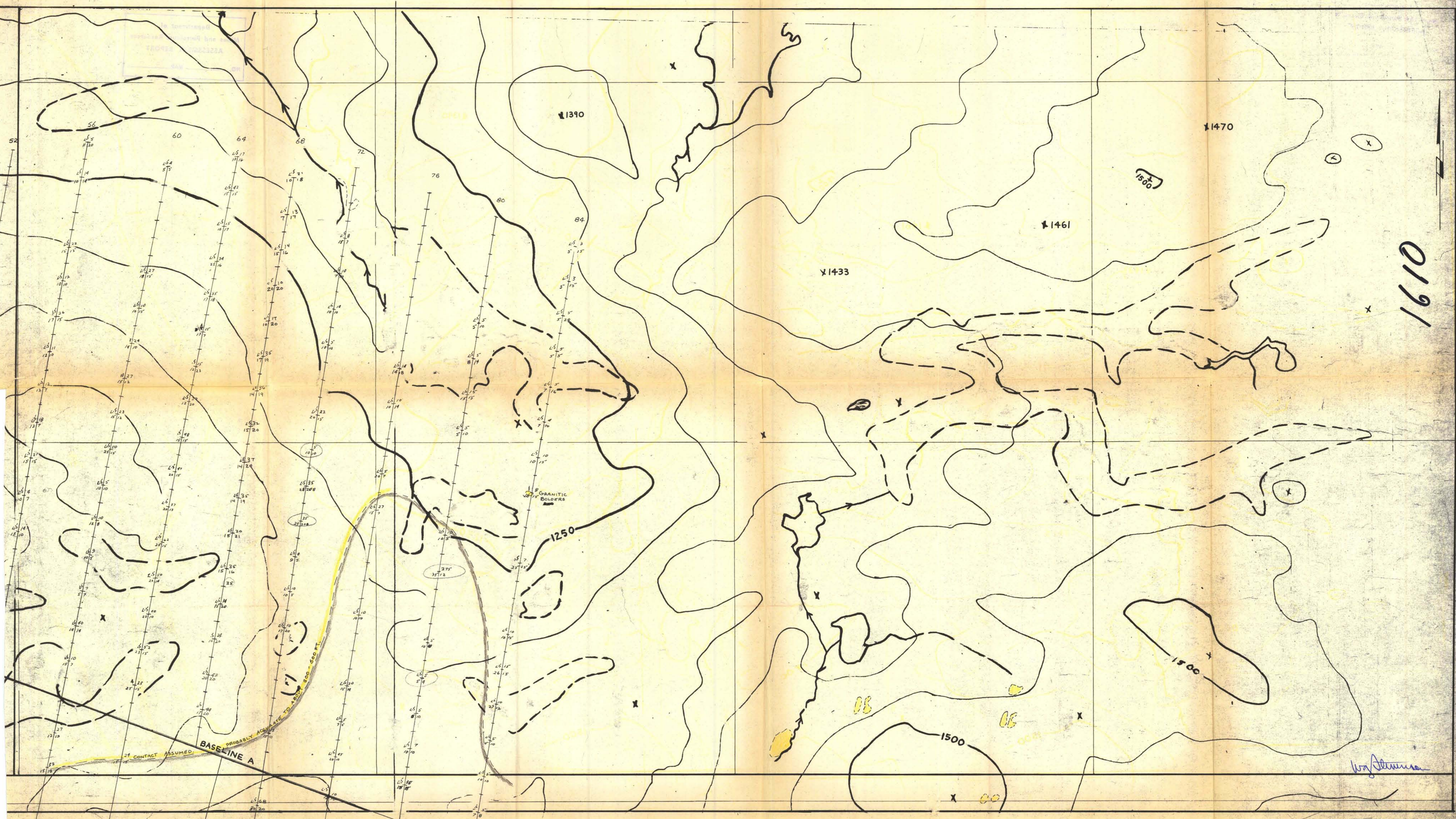
CONTACT ASSUMED

GRANODIORITE

VOLCS. BAKED SED?

SHEAR - 1/2' CRUSH ZONE





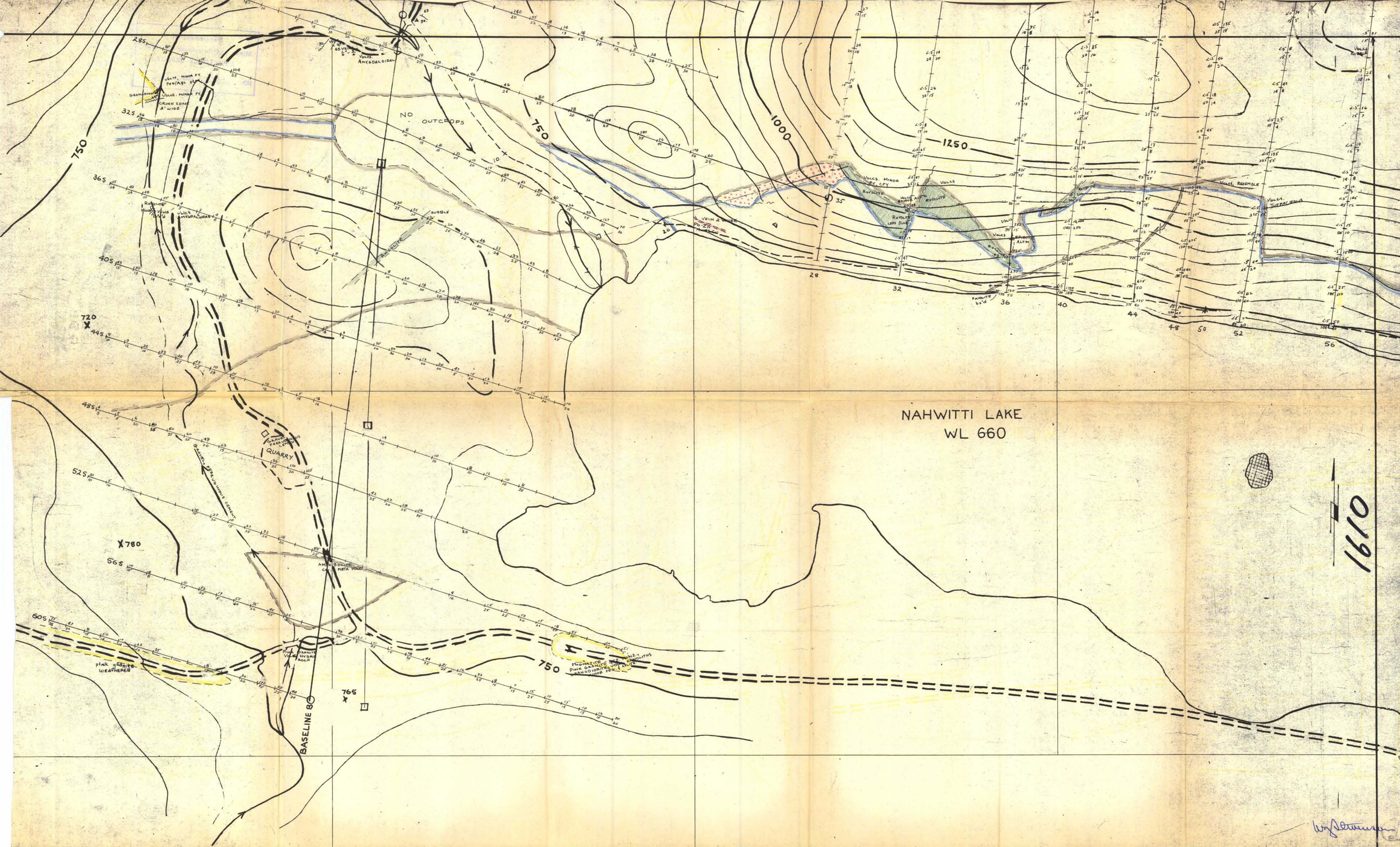
1610

PROBABLY ACCURATE TO 100 FT.  
20 CONTACT ASSUMED.  
BASELINE A

GRANITIC BOLDERS

*W. J. Stevens*



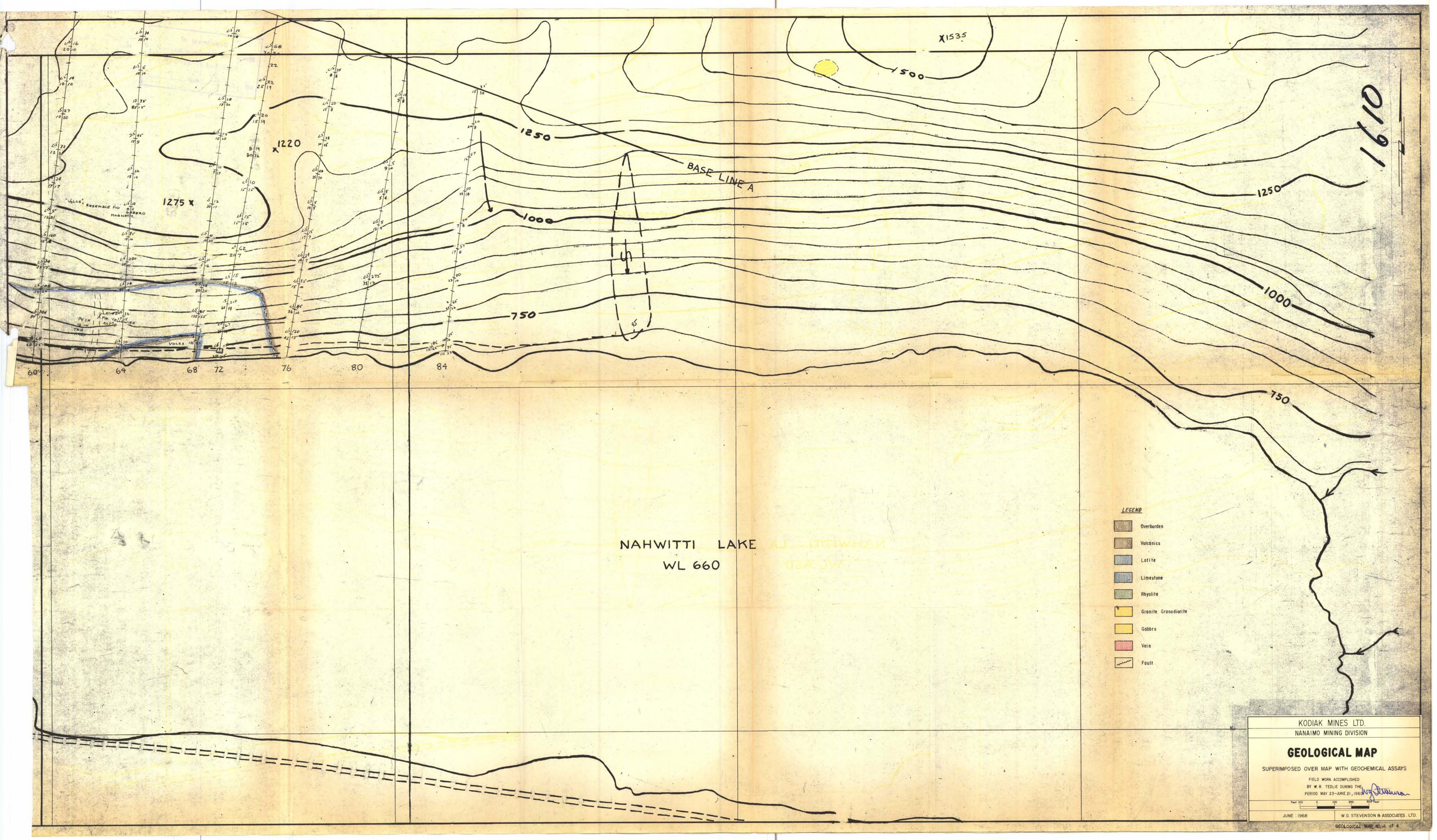


NAHWITTI LAKE  
WL 660

1610

*W. J. Stewart*





1610

X1535

1220

1275 x

BASE LINE A

1250

1250

750

1000

750

NAHWITTI LAKE  
WL 660

LEGEND

- Overburden
- Volcanics
- Latite
- Limestone
- Rhyolite
- Granite Granodiorite
- Gabbro
- Vein
- Fault

KODIAK MINES LTD.  
NANAIMO MINING DIVISION

**GEOLOGICAL MAP**

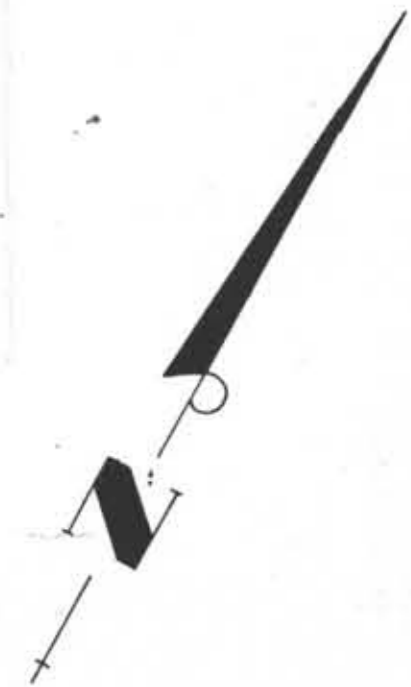
SUPERIMPOSED OVER MAP WITH GEOCHEMICAL ASSAYS

FIELD WORK ACCOMPLISHED  
BY W. R. TEDLIE DURING THE  
PERIOD MAY 23-JUNE 21, 1968

Scale: 1" = 100 feet

JUNE 1968 W. G. STEVENSON & ASSOCIATES, LTD.





**INSERT**  
SCALE: 1"=10 FEET

Discontinuous Qtz. Stringers  
Sample: 4" Vein Of Galena

Gold	Trace
Silver	130.04 Oz.
Copper	0.04 %
Lead	53.24 %
Zinc	9.18 %

Life Coloured Limestone  
Steeply dipping 30°  
Old Pit Now Caved

Sample  
6 Feet  
Gold Trace  
Silver 0.36 Oz.  
Copper 1.63 %

Sample Across  
Best 1 1/2 Feet  
Gold Trace  
Silver 5.44  
Copper 0.07 %  
Lead 3.26 %  
Zinc 6.46 %

Lead Zinc Vein Reported

**LEGEND**

- Vancouver Group
- Bonanza Volcanic & Volcanic
- Quatsino Limestone
- Karmutsen Volcanic
- Intrusive
- Rhyolite Dike
- ▨ Limestone
- Fault

1610

APPENDIX E *W. Stevenson*

**NAHWITTI LAKE GROUP**  
NANAIMO M.D. BRITISH COLUMBIA  
**GEOLOGICAL SKETCH MAP**

SAMPLES COLLECTED BY:  
WG STEVENSON

100' 50' 0 100' 200 FEET  
SCALE: 1"=10 FEET







JANUARY, 1968 W.G. STEVENSON, P. Eng.



# KODIAK MINES

DETAIL OF GEOLOGY  
OVER ANOMALOUS GEOCHEMICAL  
AREA

Scale: 1 inch = 50 ft.

- Legend:
- |  |   |                |   |
|--|---|----------------|---|
| Limestone                                  |  | Rhyolite       |  |
| Volcanics                                  |  | Mineralization |  |
| Copper Content<br>in Soil above<br>90 PPM. |  | Fault          |  |
- Drawn by W. Tadić  
10/2/58



Volcanics - abundant  
small outcrops

few very small,  
scattered  
outcrops

Volc. epidote  
alt. diss. py.

Volcanics, rare  
diss. py.

to volcanic  
mineralization  
along fault

ls. mainly  
dk gy.  
calcite  
veinlets

pit. ls. with  
stains of diss. py.  
Gauge  
10 ppm Cu.

Small pit  
ls.

Small outcrop  
Calc. in ls.  
Gy. stains, Diss. py.

No outcrops  
in this area,  
but abundant  
Volcanic rubble:  
Evidence of soil creep  
was here

ls. black,  
fine calcite  
veins

area of small  
outcrops  
ls. dk gy. to  
black

ls. black,  
fine calcite  
veins

ls. dk gy.  
calc. veinlets

ls. rubble  
dk gy.  
calc.  
veinlets

ls. black,  
fine grained.

ls. rubble, dk gy.

ls. dk gy.  
calc. veinlets

NAHWITTI LAKE

1610

*W. Tadić*



0191  
1610

EAR LAKE

1250

BASELINE A

BASELINE B

KEN NO 4

HILL NO 1

KEN NO 6

KEN NO 8

KEN NO 7

KEN NO 1

KEN NO 2

HILL NO 2

KEN NO 5

JEAN NO 6

FTR NO 1

FTR NO 2

KEN NO 11  
FRAC

JEAN NO 2

JEAN NO 4

LAKE

x 1194

1000

750

750

000

1250

X1285

1250

1370

W. J. Johnson H



KEN  
No 8

KEN  
No 10

KEN  
No 9

KEN  
No 7

JEAN  
No 6

JEAN  
No 8

FRANK  
No 1

FRANK  
No 3

JEAN  
No 10

JEAN  
No 5

JEAN  
No 7

FRANK  
No 2

FRANK  
No 4

FRANK  
No 6

FRANK  
No 8

FRANK  
No 5

FRANK  
No 7

1390

1470

1500

1461

1433

BASELINE C

1250

BASELINE A

BASELINE C

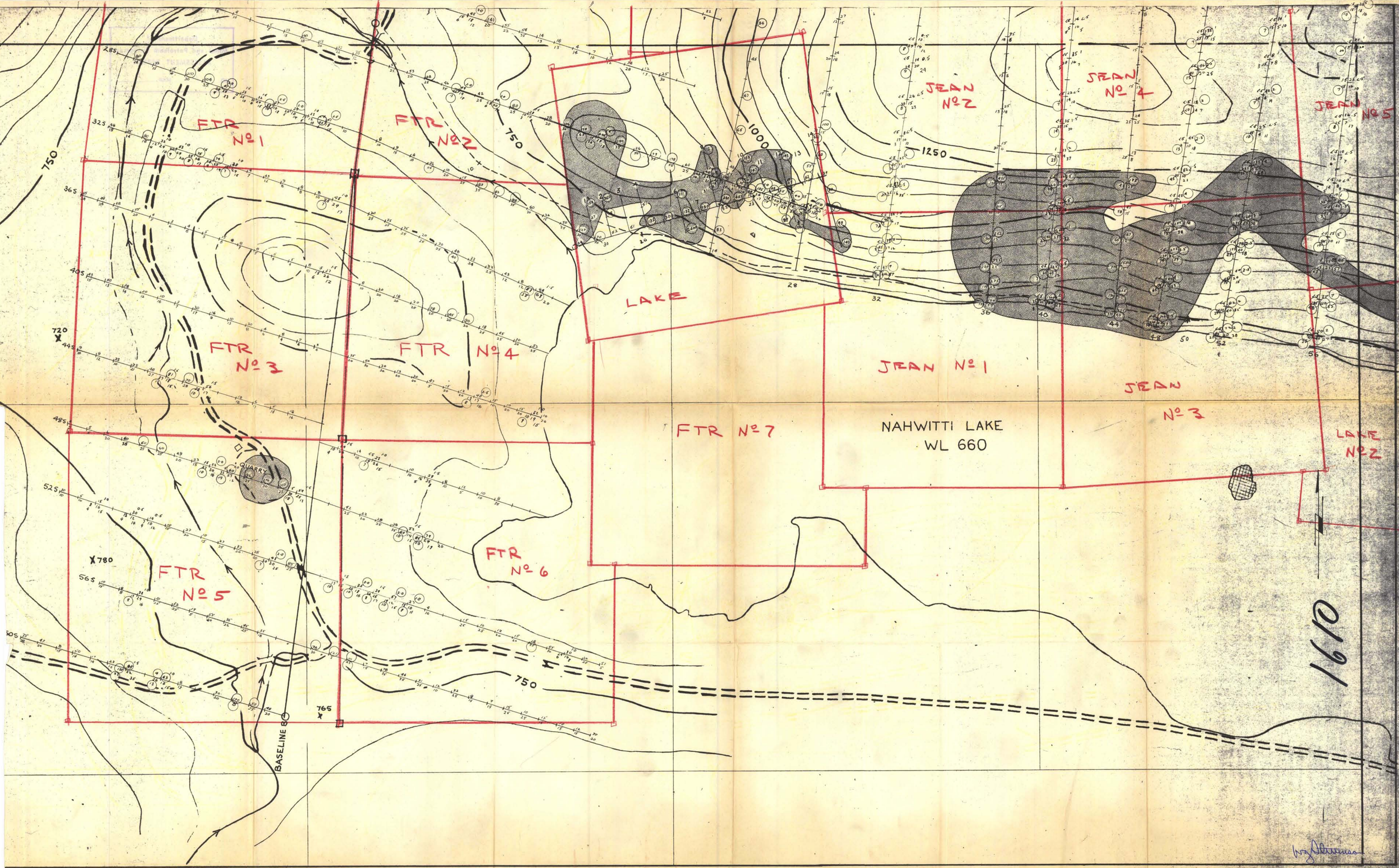
1500

1500

1610

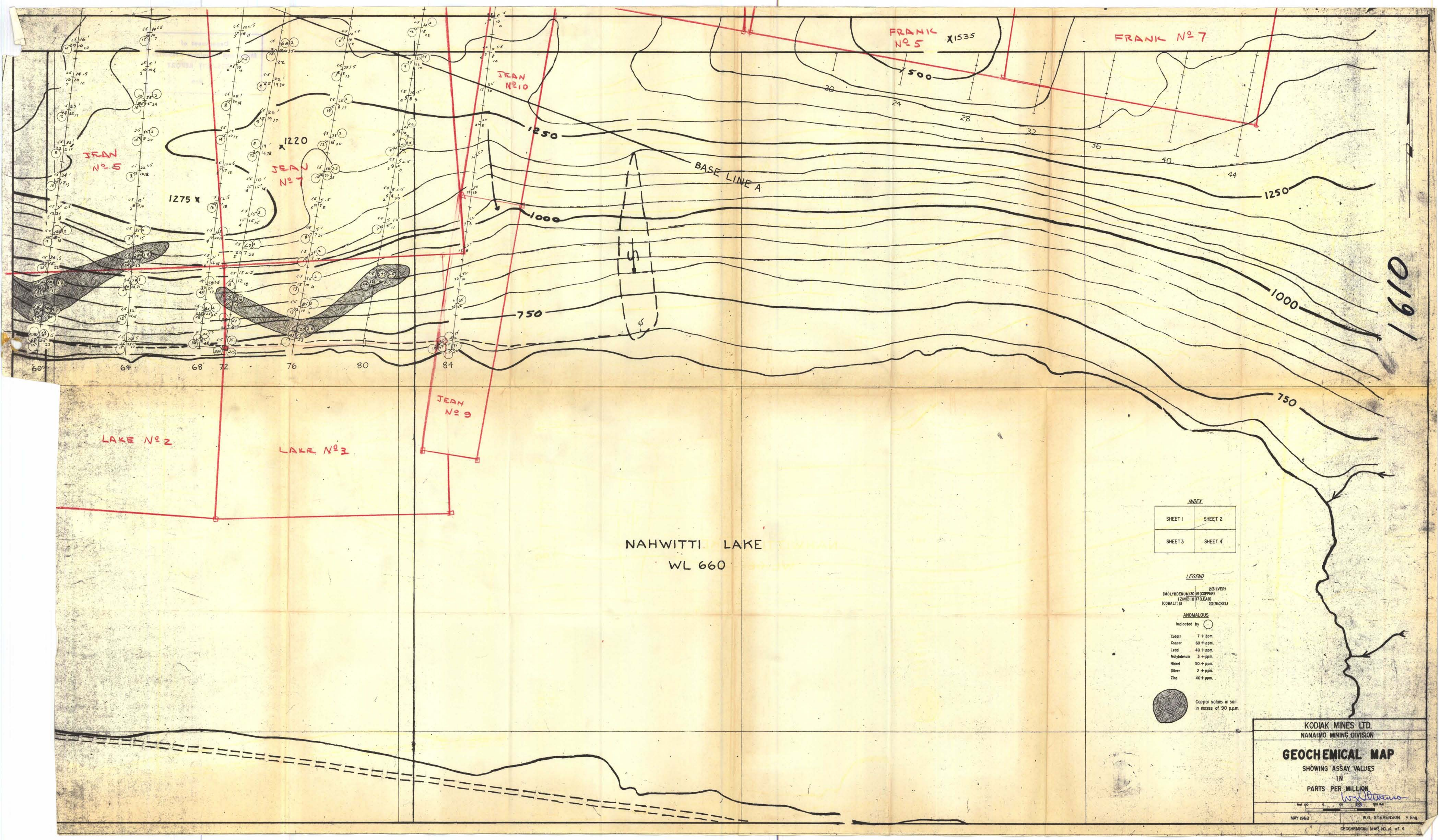
W. J. ...





by Stevens





INDEX

SHEET 1	SHEET 2
SHEET 3	SHEET 4

LEGEND

(MOLYBDENUM) 30 (SILVER)  
 (ZINC) 10 (COPPER)  
 (COBALT) 15 (LEAD)  
 25 (NICKEL)

ANOMALOUS  
 Indicated by ○

- Cobalt 7+ ppm
- Copper 60+ ppm
- Lead 40+ ppm
- Molybdenum 3+ ppm
- Nickel 50+ ppm
- Silver 2+ ppm
- Zinc 40+ ppm

● Copper values in soil in excess of 90 ppm.

KODIAK MINES LTD.  
 NANAIMO MINING DIVISION

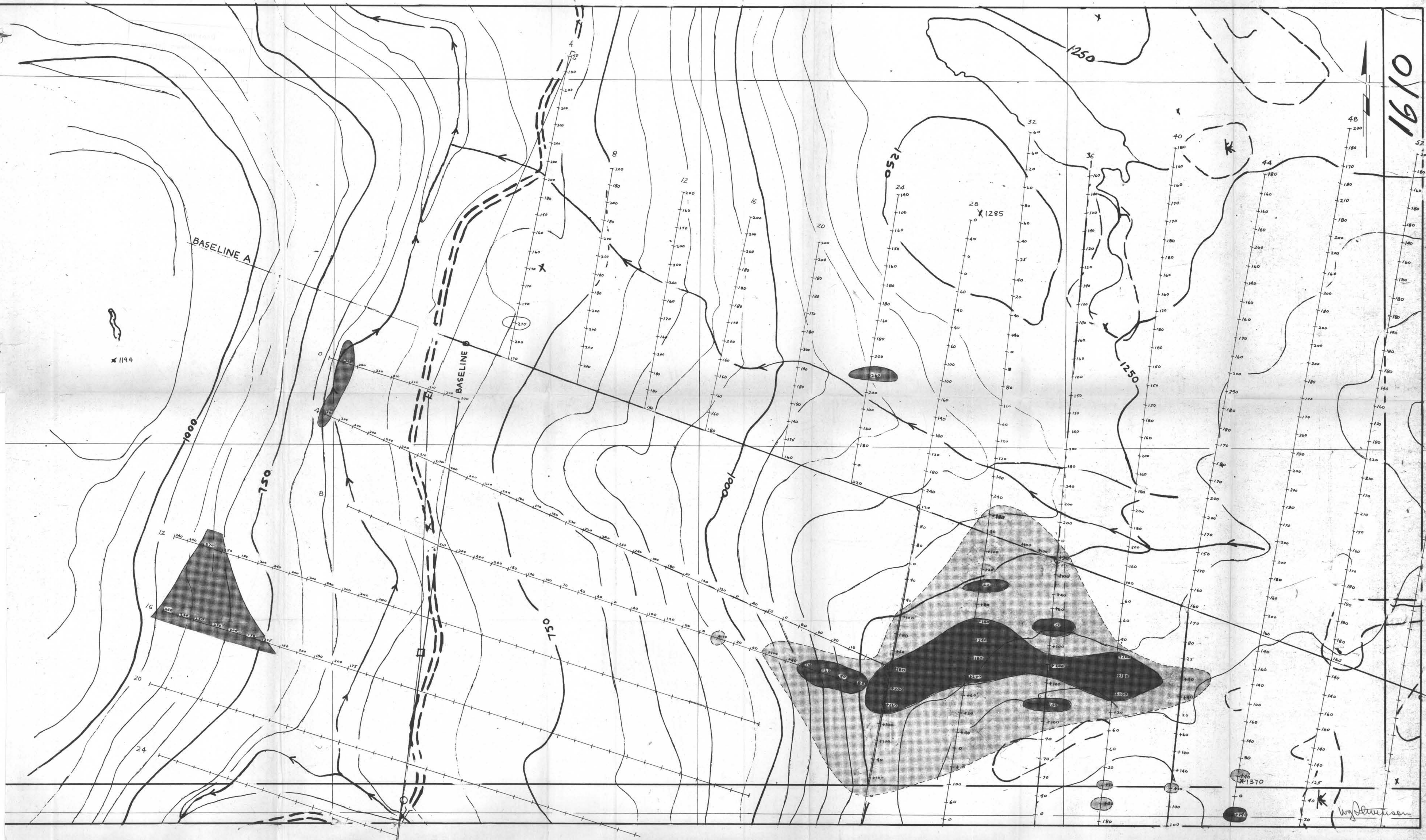
**GEOCHEMICAL MAP**  
 SHOWING ASSAY VALUES  
 IN  
 PARTS PER MILLION

MAY 1968 W.G. STEVENSON P. Eng.

GEOCHEMICAL MAP NO. 4 of 4

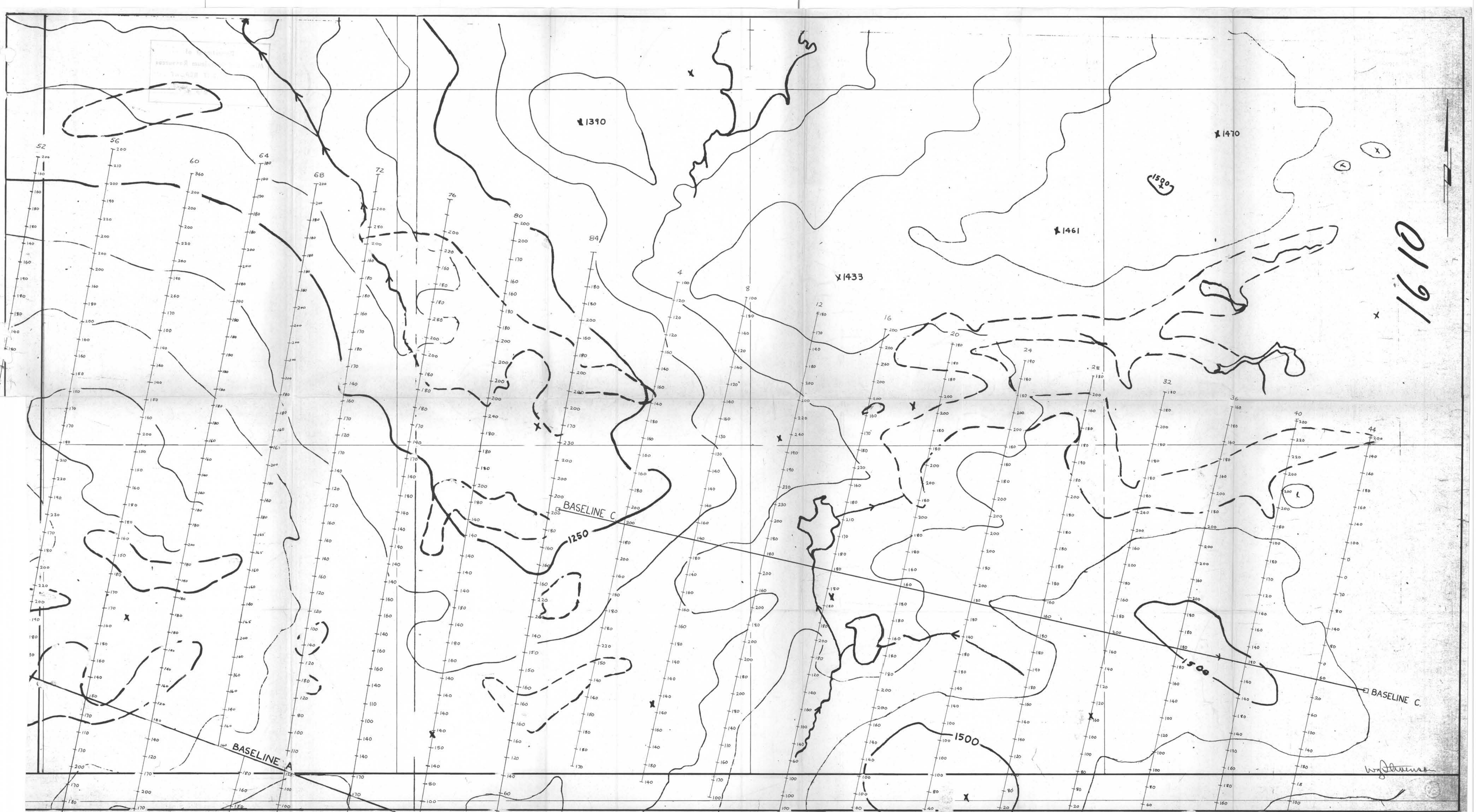


0191  
1610



MAGNETOMETER SURVEY MAP NO. 1614  
W. J. Stevenson

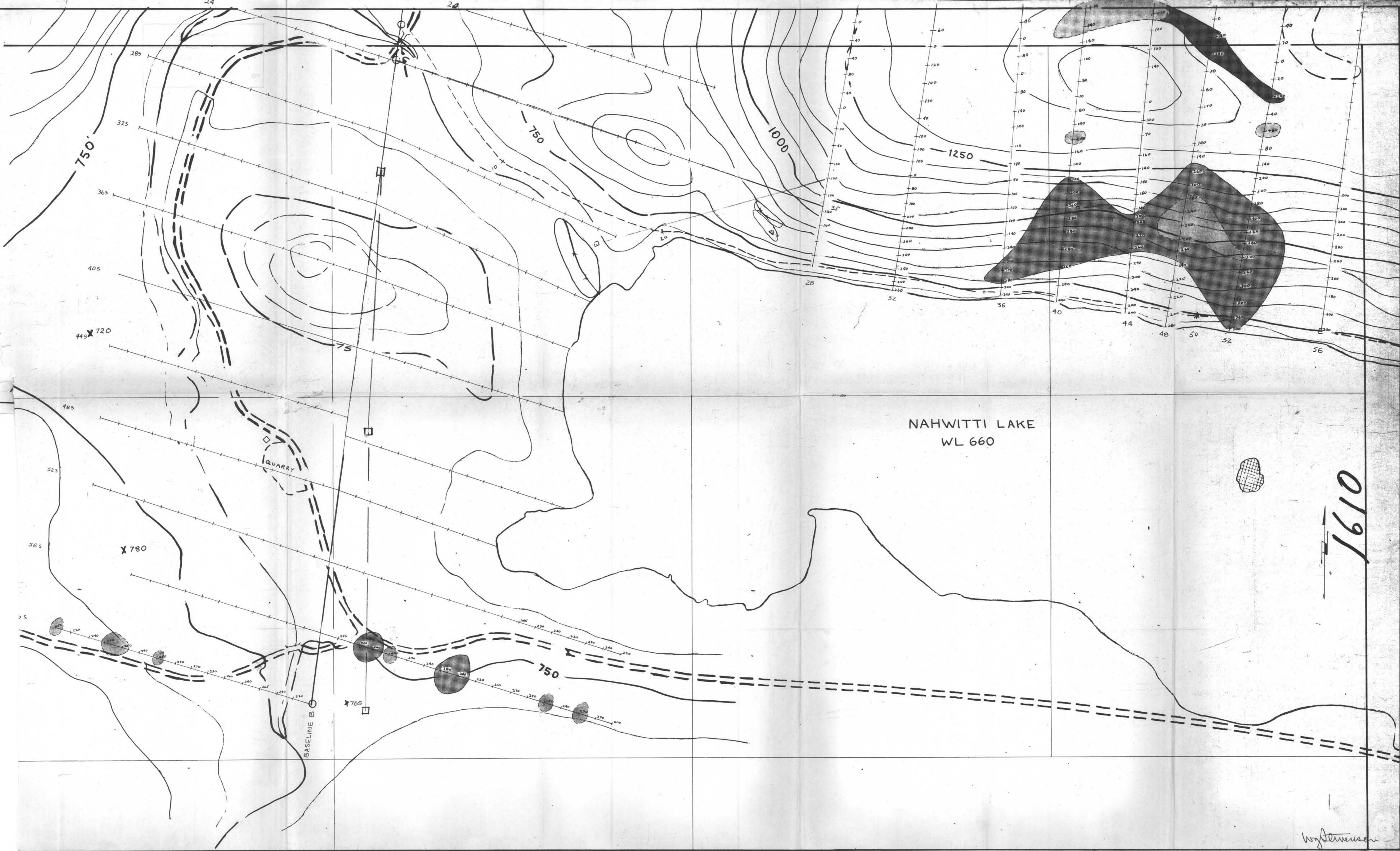




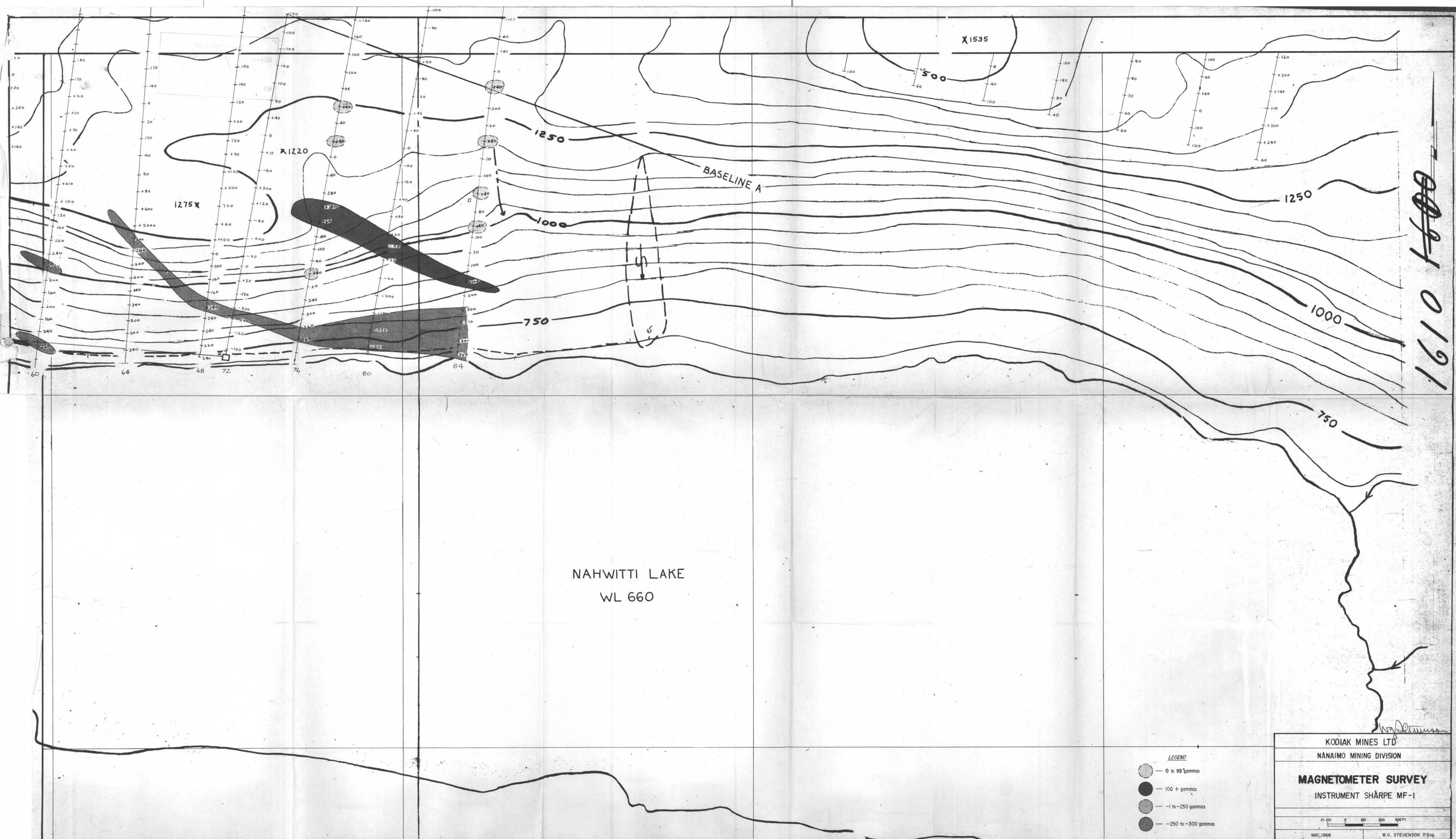
1610

W. J. ...









1610 1600  
0191

NAHWITTI LAKE  
WL 660

- LEGEND
- 0 to 99 gammas
  - 100 + gammas
  - ◐ -1 to -250 gammas
  - ◑ -250 to -300 gammas

KODIAK MINES LTD  
NANAIMO MINING DIVISION

**MAGNETOMETER SURVEY**  
INSTRUMENT SHARPE MF-1

0 100 200 300 Ft.

MAY, 1968 W.G. STEVENSON P.Eng.  
MAGNETOMETER SURVEY MAP NO. 414