Report of Trenching, Geological Mapping and Magnetometer Survey, BM No. 9 Claim Group, Mount Billings Area, Southeastern Yukon.

Sheet 105-H-7

61°19'N lat., 128°43'W long.

Yukon Pacific Prospecting Group

June to September 1965 Erik A. Ostensoe.

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SUMMARY

Parts of the BM claims area are lithologically and structurally favorable for the emplacement of ore minerals. Magnetometer surveys indicated the location and probable dimensions of bodies of anomalously magnetic rock. Trenching using hand tools proved to be ineffective as a means of investigating the ore mineralization. Geological mapping revealed some details of host rock-ore mineral relationships but little information regarding structural controls of ore mineralization.

Several magnetically-anomalous areas remain to be investigated and additional geophysical work followed by drilling or trenching operations was recommended.

INTRODUCTION

This report is a record of geological and geophysical field work and physical representation work performed on claims of the BM #9 claim group by the writer and other employees of Yukon Pacific Prospecting Group. This work commenced in June 1965 and continued until mid-September.

The work was done under the direction of Ronald P. McBean, field manager of Yukon Pacific Prospecting Group. Camps were moved and serviced by pack horses and helicopters and some supplies were transported from Watson Lake to "Kern Lake", about six miles south of the claims, by Beaver aircraft.

CLAIMS

The BM #9 claim group consists of sixteen full-sized mineral claims:

Claim Name	Record No.
BM #9 M. C.	88877
#11	88879
#21	88889
#22	88890
#23	88891
#24	88892
#25	88893
#26	88894
#27	88895
#28	88896
#29	88897
#30	88898
#31	88899
#32	88900
#45	88935
#46	88936

These claims were staked in August and September of 1964 by employees of Yukon Pacific Prospecting Group and have been grouped, for the purpose of applying assessment work, in accordance with Sec. 53(4) of the Yukon Quartz Mining Act.

LOCATION

Figures 1 and 2 indicate the location of the BM #9 Group of mineral claims. They are at 61°19'N latitude; 128°43'W longitude, in the Logan Mountains physiographic subdivision of the Interior System of the Cordillera[1]. near a divide between tributaries of Frances and Hyland Rivers. Elevations of the claims range from 4300 to 5000 feet above sea level.

REFERENCE NAMES

The main stream in the southeasterly-trending valley in which the BM claims are situated was, for convenience of reference, named "Jane Creek" and tributaries from the northeast side of the valley were named successively from the head of valley, "45", "46" and "47" Creeks. An east-flowing tributary that joins Jane Creek near 45 Creek was designated "43 Creek". The area near the claim posts at the northwest end of claims BM 25 and BM 26 was called the "Crutch".

CLIMATE AND VEGETATION

The climate of mountainous parts of south-

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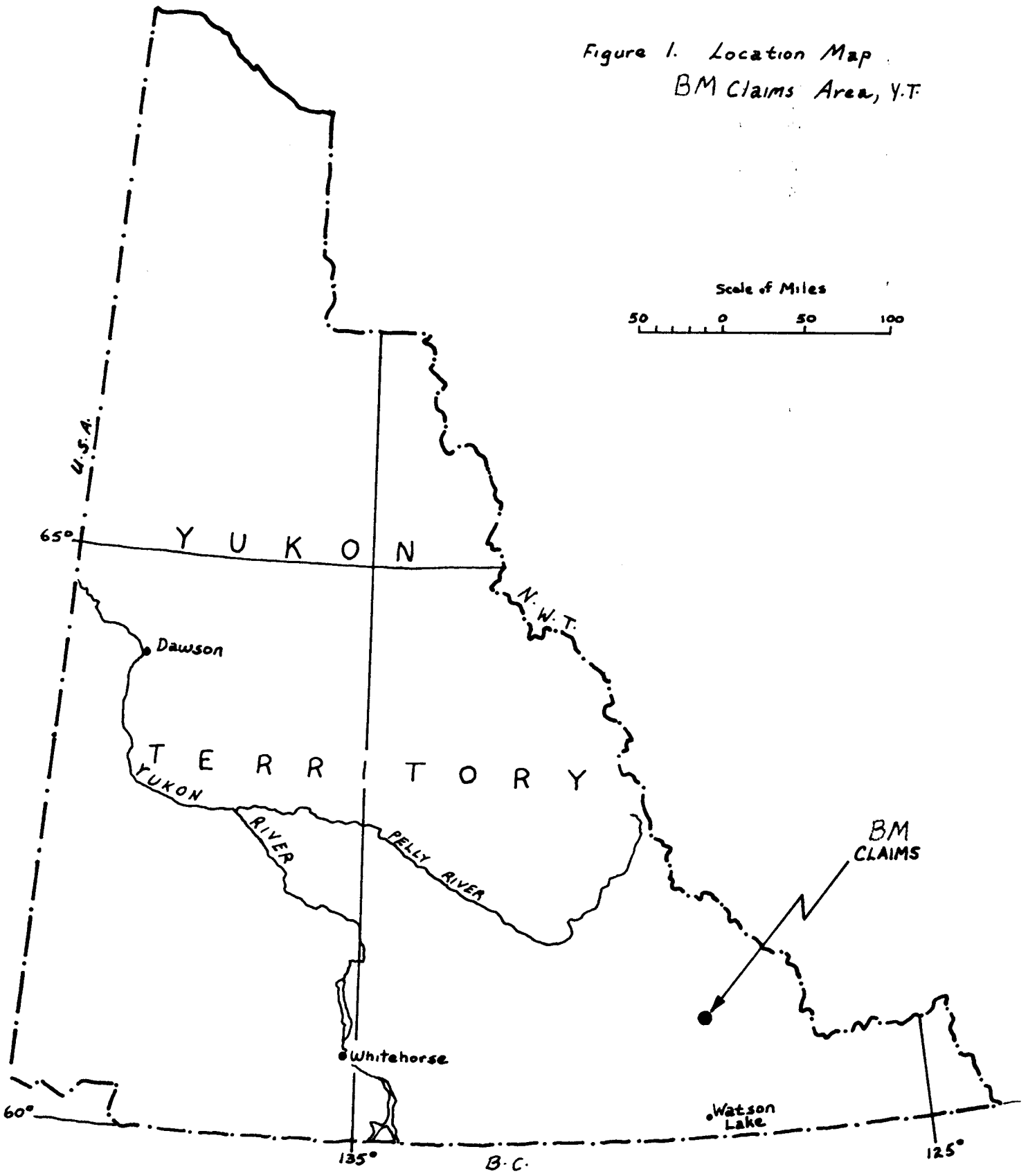
1. Bostock, H. S. 1948, Physiography of the Canadian Cordillera, Geol. Surv. Can., Mem. 247.

Figure 1. Location Map
BM Claims Area, Y.T.



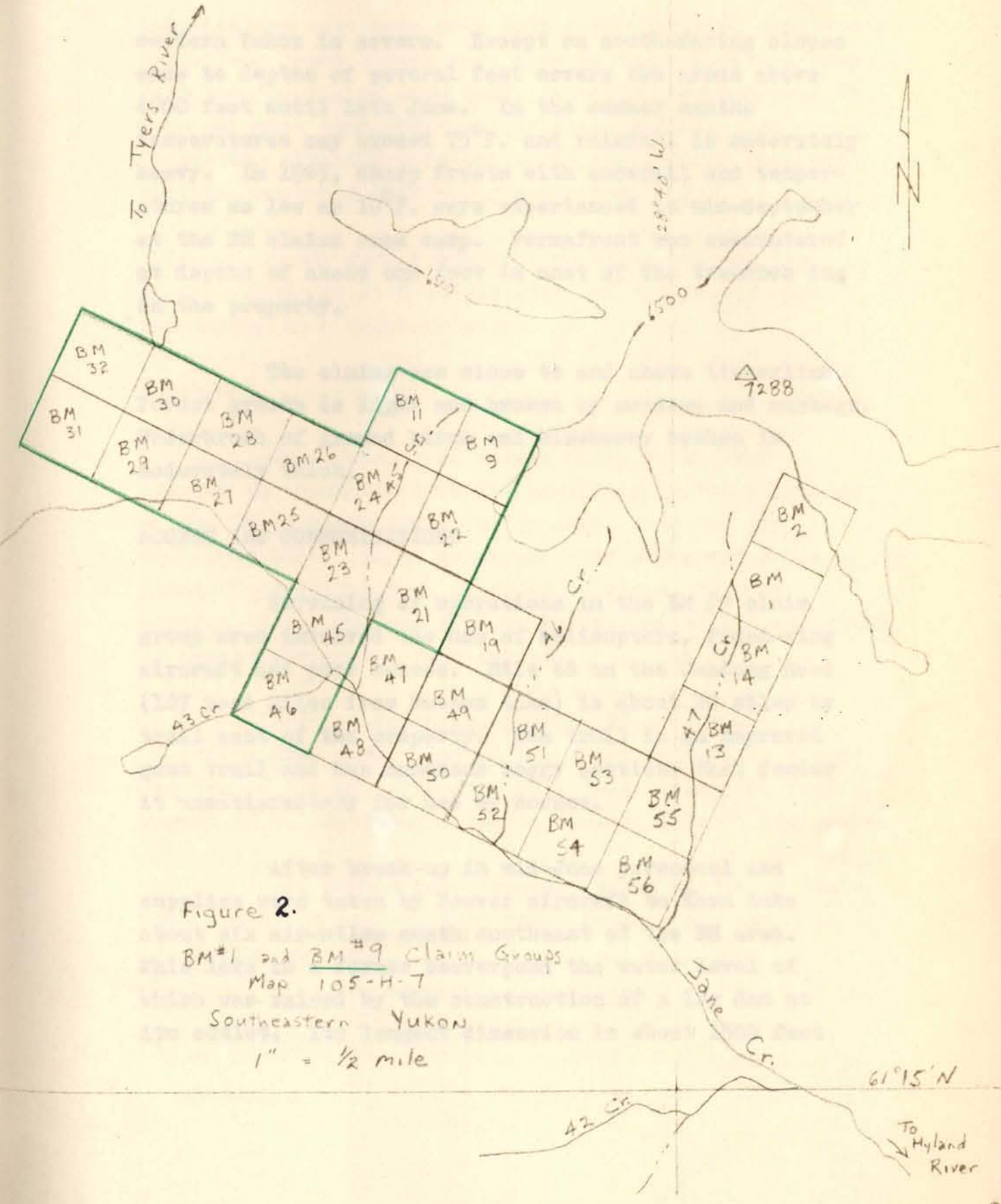


Figure 2.

BM#1 and BM #9 Claim Groups
Map 105-H-7
Southeastern Yukon
1" = ½ mile

eastern Yukon is severe. Except on south-facing slopes snow to depths of several feet covers the areas above 4000 feet until late June. In the summer months temperatures may exceed 75°F. and rainfall is moderately heavy. In 1965, sharp frosts with snowfall and temperatures as low as 10°F. were experienced in mid-September at the BM claims area camp. Permafrost was encountered at depths of about one foot in most of the trenches dug on the property.

The claims are close to and above timberline. Forest growth is light and broken by meadows and muskegs. Underbrush of ground birch and blueberry bushes is moderately thick.

ACCESS AND COMMUNICATIONS

Servicing of operations in the BM #9 claim group area involved the use of helicopters, fixed-wing aircraft and pack horses. Mile 48 on the Cantung Road (107 road miles from Watson Lake) is about 20 miles by trail east of the property. The trail is an improved game trail and has numerous boggy sections that render it unsatisfactory for use by horses.

After break-up in mid-June personnel and supplies were taken by Beaver aircraft to Kern Lake about six air-miles south southeast of the BM area. This lake is a former beaverpond the water level of which was raised by the construction of a log dam at its outlet. Its longest dimension is about 1500 feet

and landings were made only when favorable wind conditions prevailed. Pack horses were used to relay supplies from Kern Lake to the BM area camp. A helicopter was used to move supplies that could not be horse-packed, when fixed-wing aircraft were not available or when inclement weather precluded fixed-wing operation.

Short wave radio communications between the BM area camp and both Watson Lake and Whitehorse were maintained on a regular basis.

PERSONNEL

Dale Duncan, of Watson Lake, Y. T., was engaged in trenching work and ancillary duties on claims of the BM #9 claim group during June, July and part of August 1965. He is an experienced miner and holds a blaster's certificate. Bradford Callison, of Rose Prairie, B.C., was employed as horsewrangler and assistant to Duncan during the same period.

Erik A. Ostensoe, geologist, supervised the BM claims area work, visited the property several times and was on the property from July 7-12 inclusive, from August 22 to September 7 and September 12 to 21 inclusive.

Mr. McBean made frequent short visits to the area and spent several days there in July and again in mid-September.

GENERAL GEOLOGY

No geological maps relative to the general Mount Billings-Tyers River area have been published. Regional geological features were not studied by the writer. Upper portions of Jane Creek occupy a broad valley, the west side of which is formed by barren and rugged slopes that rise sharply from the valley floor to abour 6000 feet elevation, and the east side, by less rugged grassy slopes surmounted above 5500 feet by steep cliffs. The valley floor is hummocky and very irregular, without thick deposits of unconsolidated material. This lack of glacial debris is anomalous because glacial deposits up to at least 100 feet are present along the east side of the valley. The extent of the latter deposits, presumed to be of Recent age, is not known. Post-glacial streams have apparently scoured such materials from the valley bottom.

Upper Jane Creek valley occupies the trough portion of a gently southeasterly-plunging syncline developed in rather thinly bedded metasedimentary rocks. The synclinal structure is indicated by convergence of strikes of beds and by valleyward dips on either side of the valley (reference: sketch map prepared by G. A. Dirom, Sept. 1964).

Granitic rocks outcrop in the upper portions of 45 and 46 Creeks, at the divide between Tyers River drainage and Jane Creek and irregularly in the bed of Jane Creek. Similar granite was reported by Yukon Pacific Prospecting Group prospectors over a large region

east, north and west of the BM area.

Sulfides and magnetite are found at several places in the area in skarned sedimentary rocks near their contacts with granite. Leucocratic granite or alaskite is present or near almost every mineralized outcrop.

Figure 3 is a compilation of geologic mapping of the northwestern parts of the BM #9 claim group.

GRANITIC ROCKS

(a) Peripheral to the "Jane Creek Syncline"

Granite that outcrops outside the "Jane Creek Syncline" is a medium grained, unaltered grey-weathering type. Biotite is themmain mafic constituent and hornblende is present.

The granite is strongly jointed and in the vicinity of claims BM #31 and #32 is crossed by several lineaments. Weathering processes acting on joints developed equidimensional blocks and much glacial plucking of such blocks is evident just south of the pass that leads to Tyers River drainage.

It is apparent from the work of Yukon Pacific Prospecting Group that this granite is part of a batholith that extends east as far as the Hyland River valley,

west to the vicinity of Mount Billings[1]. and probably related to granitic bodies that outcrop north of Tyers River.

In trenches at Anomaly 1 (figure 4) coarse biotite granite is present as irregularly-shaped masses intrusive into skarn and gneiss. An outcrop of mixed igneous and bedded rocks close to Anomaly 1 was mapped as an "igneous breccia" and is probably a contact effect.

(b) In trough of syncline

Granite outcrops in the "Floor" of Jane Creek in numerous small ridges and hummocks, many of which have been extensively fractured and heaved by frost action. In contrast to the unfoliated granite that outcrops elsewhere, this rock is gneissic and may be intrusive granite contaminated by granitized sedimentary rocks.

(c) Alaskite

Closely related to sulfide mineralization in the vicinity of Anomalies 1, 2 and 3 and along the stream that crosses claims BM #29 and #30 are outcroppings of white weathering medium-grained leucogranite or alaskite in dykes ½ to 3 feet wide. In most instances this rock type was found within a few hundred feet of outcrops of either (a) or (b) type granite. Turner and Verhoogen[2]. suggest that in general alaskite is "a felsitic differentiate derived (from hornblende granite)" and that both

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1. Prospectors reports, Yukon Pacific Prospecting Group, 1964 1965.

2. Turner, F.J. and Verhoogen, J., 1960, Igneous and Metamorphic Petrology, 2nd Ed. McGraw-Hill, p. 343.

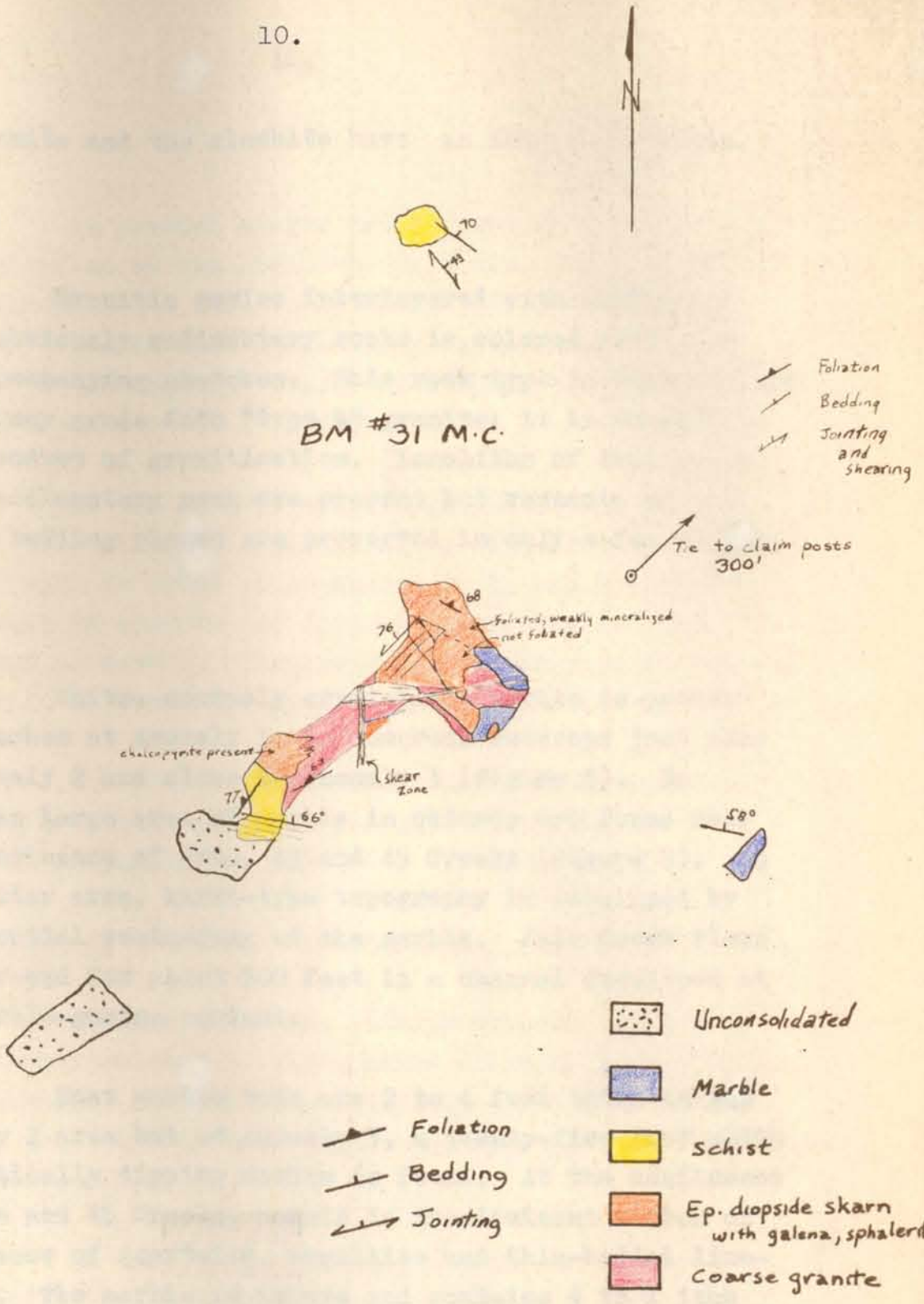


Figure 4.

Sketch to show details of geology - Trenches at Anomaly 1.

BM #9 Claim Group
Sheet 105-H-7.

Scale:- 1" = 10'.

the granite and the alaskite have an intrusive origin.

GNEISS

Granitic gneiss interlayered with marble and other obviously sedimentary rocks is colored yellow on the accompanying sketches. This rock type is very similar to and may grade into "type b" granite; it is thought to be a product of granitization. Xenoliths of less granitized sedimentary rock are present but remnants of former bedding planes are preserved in only a few places.

MARBLE

White, coarsely crystalline marble is present in trenches at Anomaly 1, in numerous outcrops just west of Anomaly 2 and close to Anomaly 3 (figure 3). In addition large ares of marble in outcrop are found near the confluence of Jane, 43 and 45 Creeks (figure 5). In the latter area, karst-type topography is developed by differential weathering of the marble. Jane Creek flows underground for about 500 feet in a channel developed at the marble-gneiss contact.

Most marble beds are 2 to 4 feet thick in the Anomaly 2 area but at Anomaly 3, a twenty-five foot width of vertically dipping marble is found. At the confluence of Jane and 45 Creeks, marble is the dominant member of a sequence of quartzite, argillite and thin-bedded limestones. The marble is impure and contains ½ to 1 inch wide bands of quartz, epidote and diopside that are more resistant to weathering than is the marble.

SKARN

In general skarns are derived from limestones and dolomites by the addition of silica, aluminum, iron and magnesium and tend to be limited to rather sharply defined zones at contacts between marbles and plutonic rocks. Often adjacent rocks are skarned by reaction with calcium derived from the marble.

In the BM area skarn-type alteration is developed in and near all marble occurrences. The strongest skarn development is found at Anomalies 1, 2, and 3 where an abundance of epidote and diopside characterizes rocks adjacent to marble. Similar material outcrops in several places in 45 Creek and near the head of 46 Creek.

The skarn alteration tends to accentuate bedding by preferential development of particular minerals in particular beds.

MAGNETITE AND SULFIDE MINERALIZATION

Sulfide minerals, with or without magnetite, are closely related to skarn zones (figures 4, 6a, 7a). The commonest mineral association is sphalerite with galena and varying amounts of magnetite, pyrite, pyrrhotite and chalcopyrite.

In different showings, the colour of the sphalerite varies from brown to jet black. Grain size is commonly less than 1mm. Galena occurs in intimate mixtures with sphalerite, as distinct bands almost free

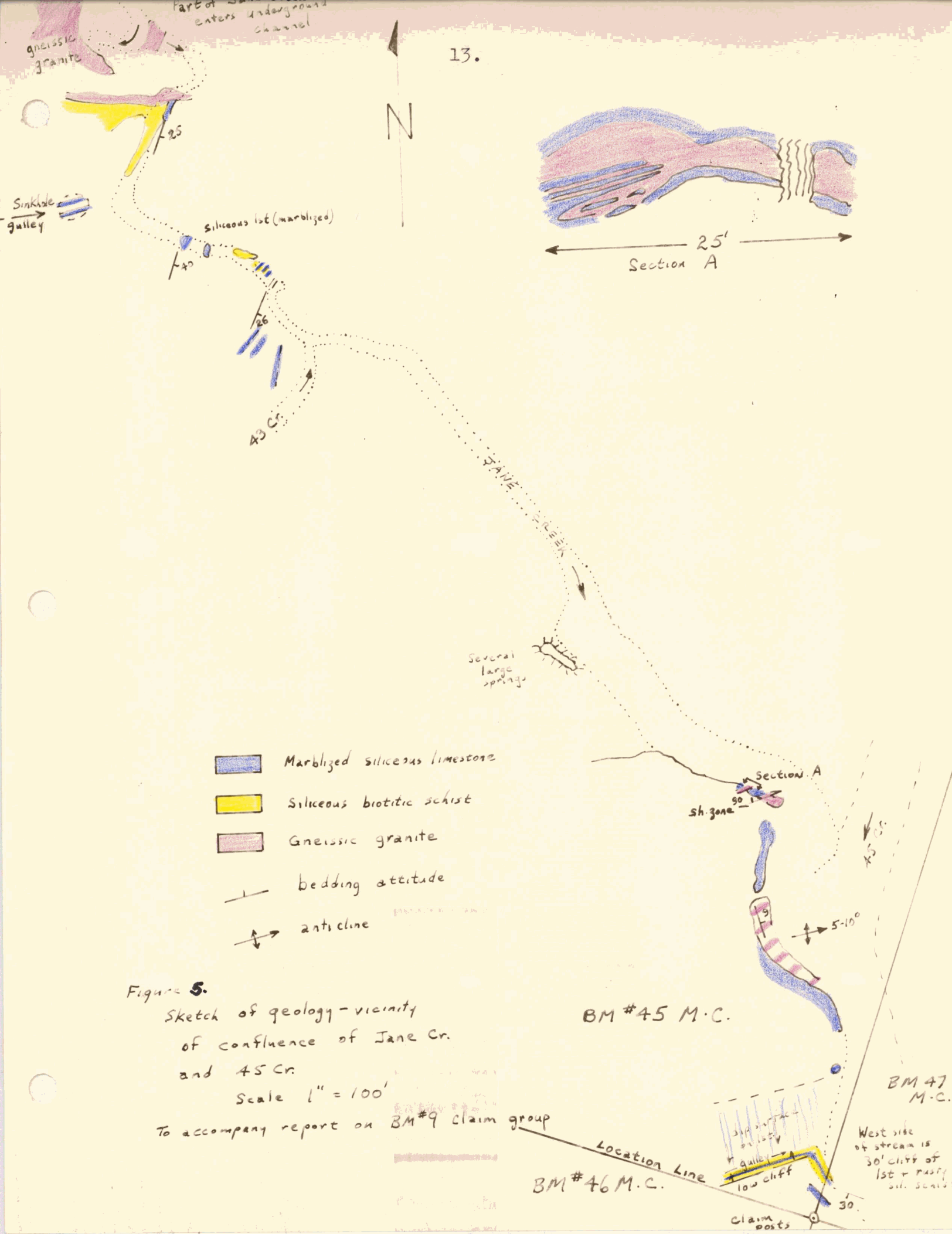


Figure 5.

Sketch of geology - vicinity of confluence of Jane Cr. and 45 Cr.

Scale 1" = 100'

To accompany report on BM #9 claim group

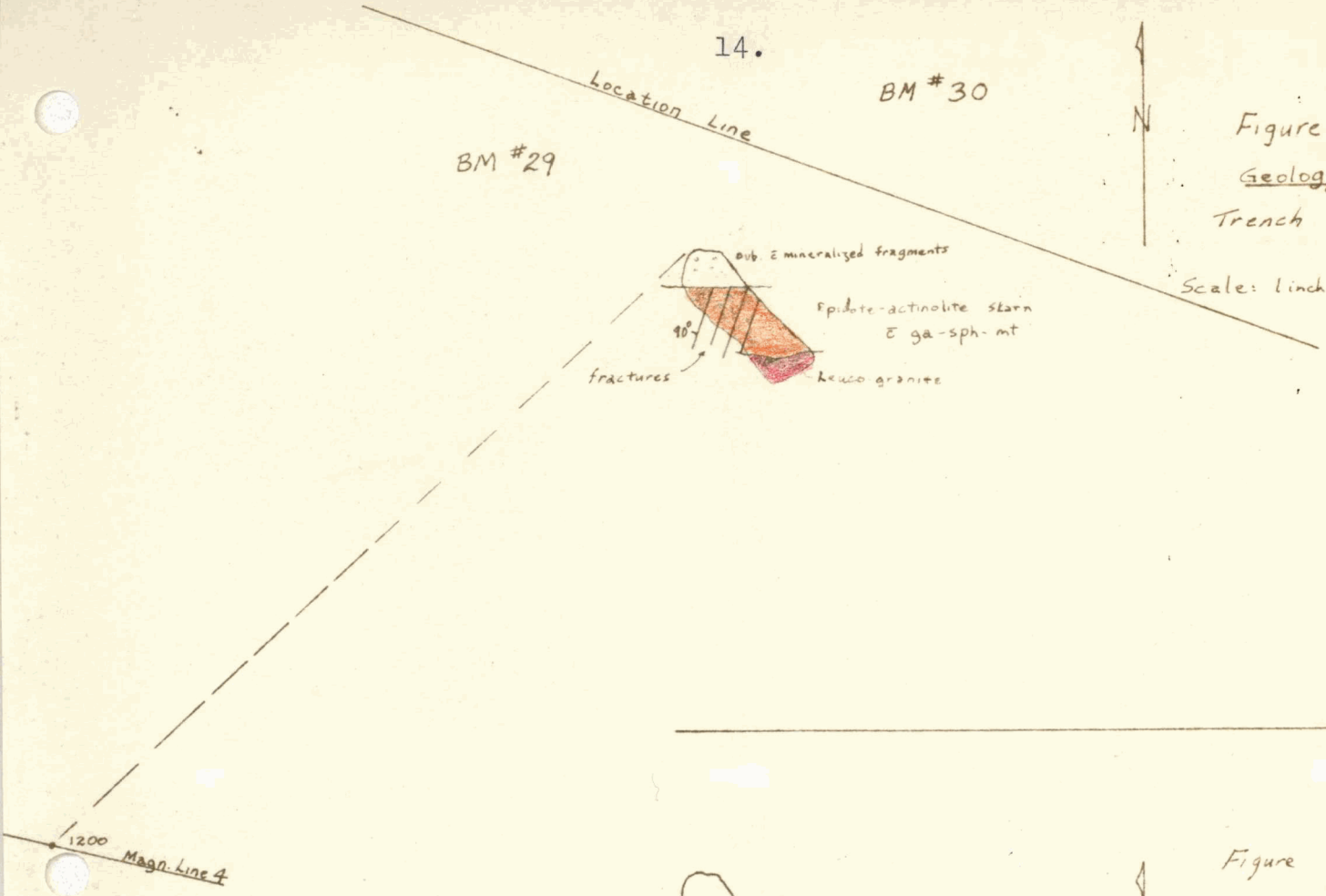


Figure 6 a

Geology

Trench #2

Scale: 1 inch = 10 ft.

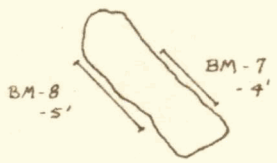


Figure 6 b

Sampling

Trench #2

Scale: 1 inch = 10 ft.

Assays

	Ag	Pb	Zn
BM-7 -	4.80	2.5	3.2
BM-8 -	3.20	3.0	3.0

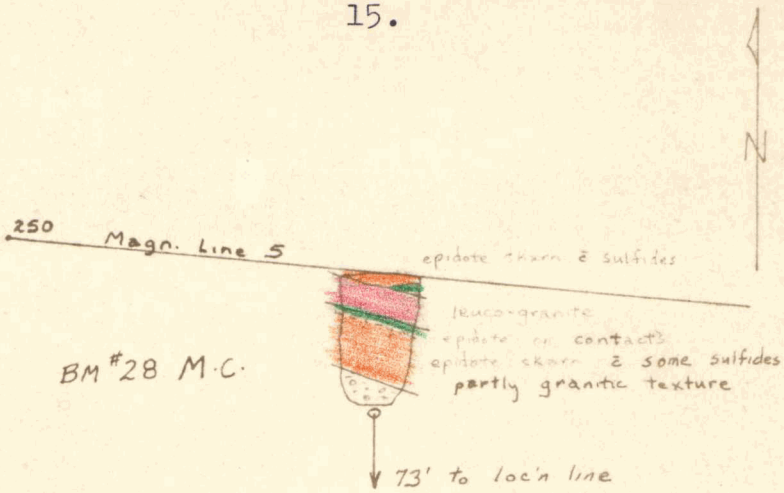


Figure 7 a.
Geology
Trench #3
Scale: 1 inch = 10 ft.

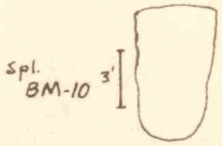


Figure 7b.
Sampling
Trench #3
Scale: 1 inch = 10 ft.

Assays

	Ag	Pb	Zn
BM-10	.454	2.3	1.1

of sphalerite and in marble without appreciable sphalerite. The galena is assumed to contain the silver values. Silver:lead ratios vary from 0.40 to 3.64.

Magnetite is present at Anomaly 1, Anomaly 3 and in 45 Creek. In the latter two locations magnetite is medium grained and massive. Sulfide ore minerals are contained in the magnetite and also in the skarn-type alteration adjacent thereto.

Magnetite-bearing float was found in many places along the gentle slopes on the east side of Jane Creek upstream from 45 Creek. Although it is possible that glacial and stream action could have transported this material from the Anomaly 3 location, as much as one-half mile distant, the presence of significant magnetic anomalies in the areas where float was found indicate local derivation.

Very little magnetite was found in skarns between anomalies 1 and 2. The presence or absence of magnetite may be related to distance from the granite contact. Galena and sphalerite however are present even very close to the granite.

TRENCHING

Trenches and pits were dug in several places in the BM claim area. Hand tools, dynamite, and a portable gasoline-powered "Cobra" rock drill were used. Two men were employed during June, July and part of August in the trenching work.

The locations of the main trenches are indicated in figure 3 (in pocket). In addition a large number of small pits were dug near the creek that crosses claims BM #29 and #30 and at the "Crutch".

Figures 6a, 7a, and 8 show the geology of various trenches. Several trenches encountered boulders and permafrost conditions that precluded their completion to bedrock. In particular, much effort was expended at Anomaly 3 with minimal success (figure 8).

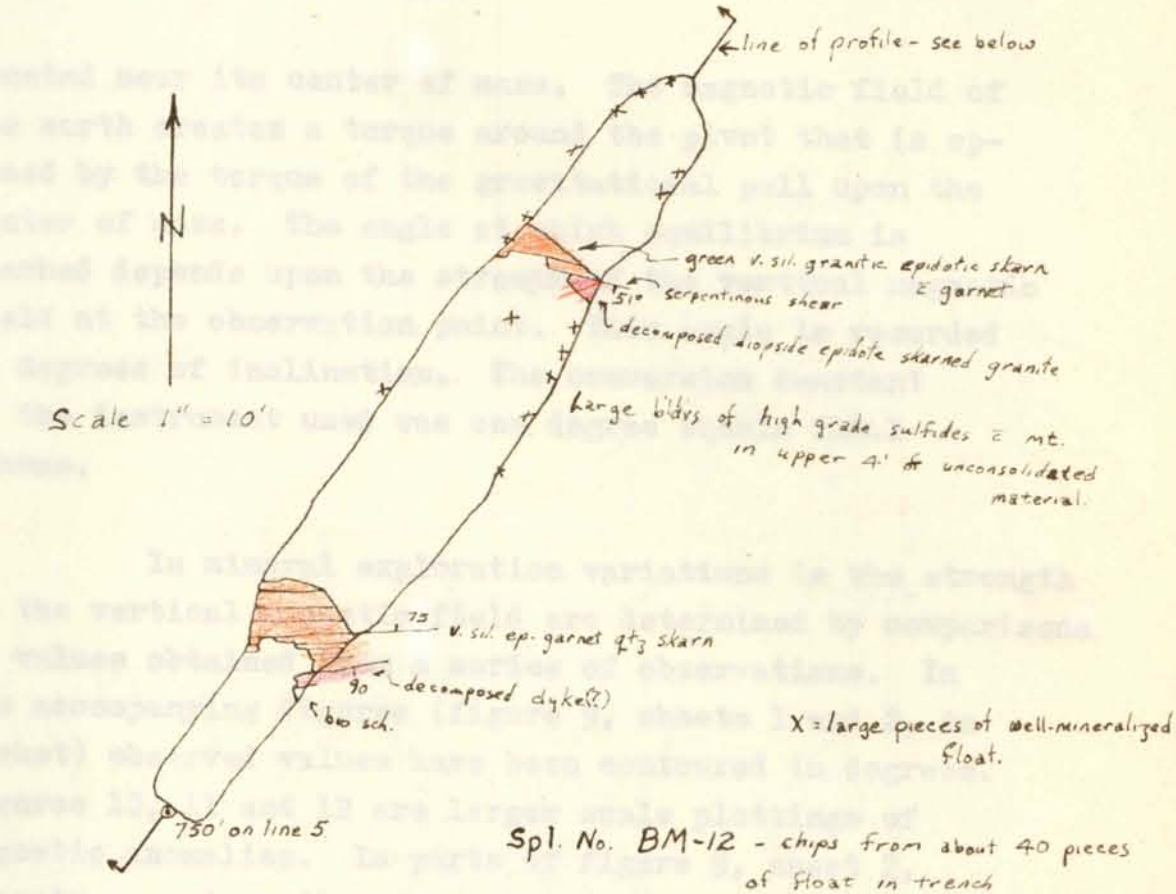
SAMPLING

Twelve samples were assayed. Bedrock samples were obtained by moiling. Broken mineralized rock was sampled in the Anomaly 3 trench and in Trench 2 by taking a small fragment from each of the exposed boulders. These samples indicated the tenor of the mineralization but the dimensions of the mineralized areas are not known.

Samples were assayed for silver, lead and zinc. One sample was also assayed for gold, and three, for copper. Analysis was by Whitehorse Assay Office, Whitehorse, Y. T.

MAGNETOMETER SURVEY

An Askania "Schmidt-type" vertical balance tripod-mounted magnetometer was used in the magnetic survey. This instrument consists of a magnet pivot-



Spl. No. BM-12 - chips from about 40 pieces of float in trench

Au - Tr.
Ag - 10.50
Pb - 3.5
Zn - 7.3
Cu - 0.01

Profile - looking NW

Figure 8

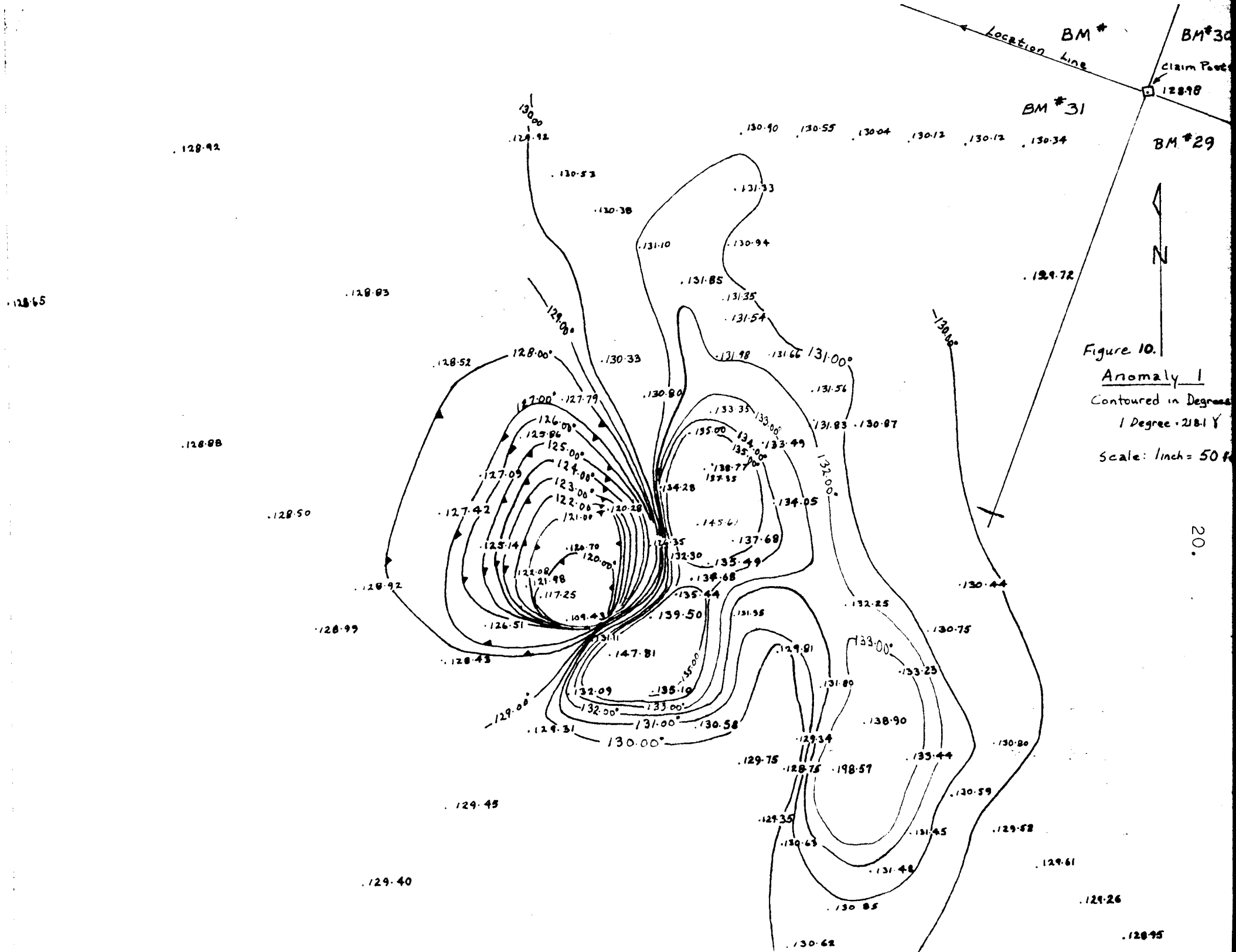
Sketch of trench - Anomaly 3

mounted near its center of mass. The magnetic field of the earth creates a torque around the pivot that is opposed by the torque of the gravitational pull upon the center of mass. The angle at which equilibrium is reached depends upon the strength of the vertical magnetic field at the observation point. This angle is recorded in degrees of inclination. The conversion constant of the instrument used was one degree equals 218.1 gammas.

In mineral exploration variations in the strength of the vertical magnetic field are determined by comparisons of values obtained from a series of observations. In the accompanying figures (figure 9, sheets 1 and 2, in pocket) observed values have been contoured in degrees. Figures 10, 11 and 12 are larger scale plottings of magnetic anomalies. In parts of figure 9, sheet 2, closely spaced readings have been plotted as four-digit numbers from which the true reading is obtained by adding 100.00 degrees.

The "average" or background, intensity of the magnetic field in the BM #9 claims area is about 129.50 degrees, equal to 28,244 gammas. Highest readings were over 200.00 degrees and lowest readings were less than 120.00 degrees.

Readings were taken at spacings that varied from 25 feet to 200 feet on lines that were measured using a 200-foot nylon cord-type "chain". Observation points were marked by pickets and flagging tape. Directions were determined by using a standard hand-held


Location Line
BM #
BM #30
Claim Post
128.98
BM #31
BM #29
N
Figure 10.
Anomaly 1
Contoured in Degrees
1 Degree = 218.1 γ
Scale: 1 inch = 50 ft
20.

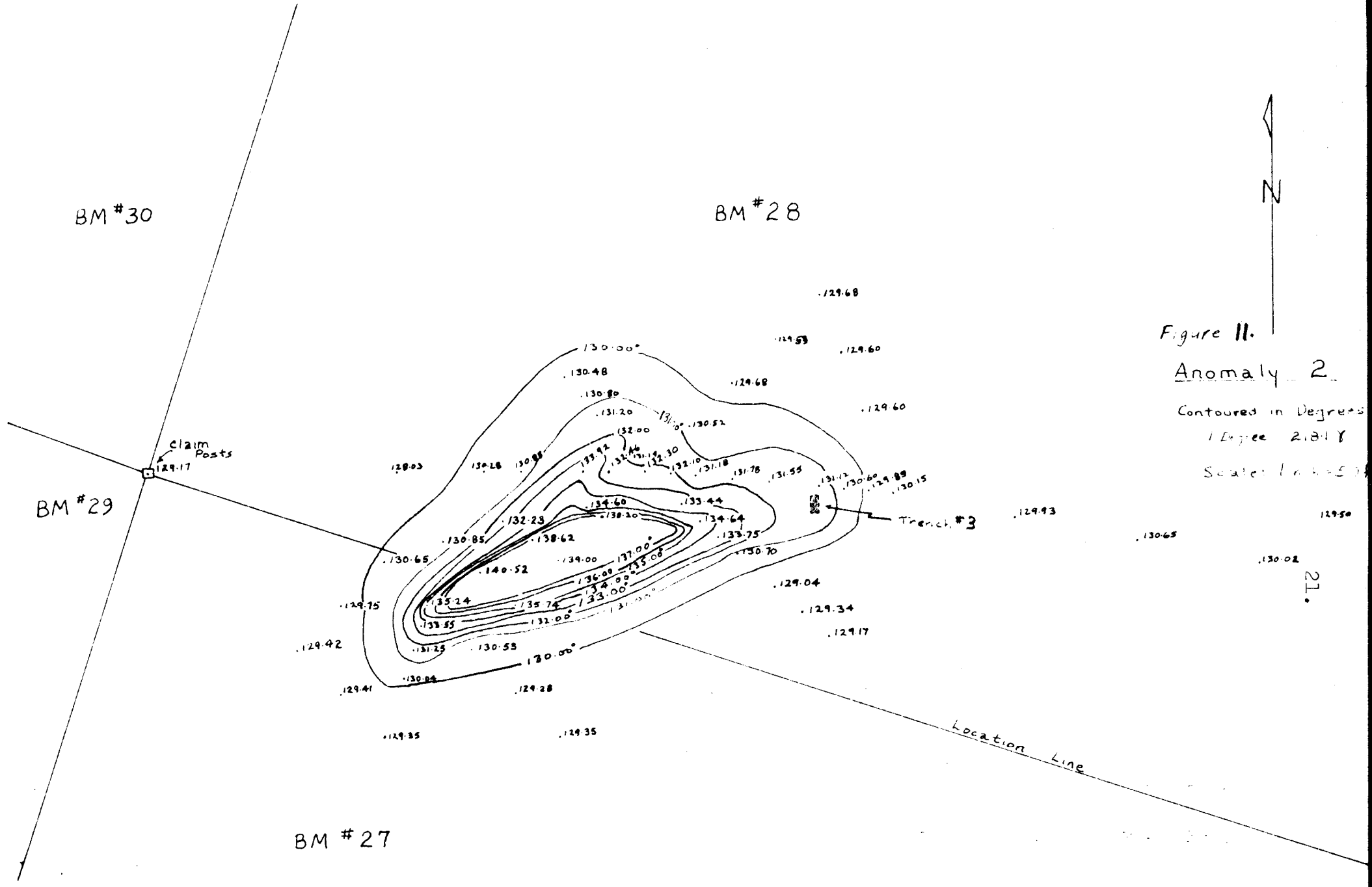


Figure 11.

Anomaly 2.

Contoured in Degrees

1 Degree 2.81 γ

Scale 1 inch = 50 ft.

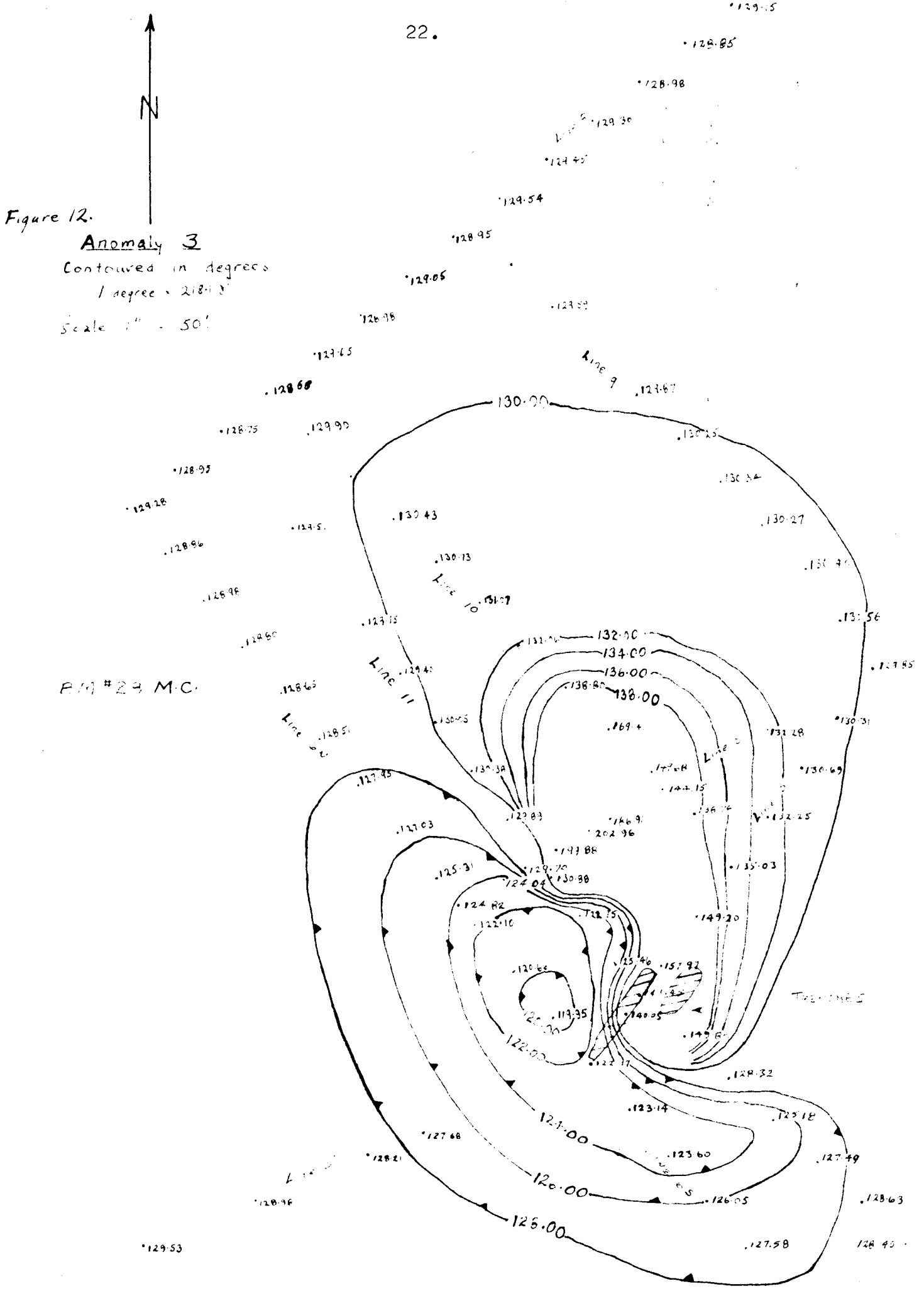


Figure 12.

Anomaly 3

Contoured in degrees

1 degree = 218.4 γ

Scale 1" = 50'

Brunton Compass. In areas of anomalously high magnetic field strength the compass was unreliable and the overall accuracy of the plotted lines of a low order.

In a magnetometer survey of this type there is probably little justification for taking observations less than 50 feet apart.

Eight magnetic anomalies were revealed by the survey. Of these, float and mineralized bedrock had already been found in three areas (anomalies 1, 2 and 3) by Yukon Pacific Prospecting Group prospectors. Those indicated on figure 9, sheet 2 were located by the magnetic survey and by careful prospecting of the latter areas a few pieces of mineralized "float" were found. Without benefit of the magnetic data, these probably would not have been sufficient to direct interest to that part of Jane Creek valley.

Apart from the plotting and contouring of magnetometer readings, there has been no attempt to further interpret magnetic data. Trenching on Anomalies 1 and 2 and elsewhere in the area uncovered sulfide mineralization near to or mixed with magnetite-bearing rock. A large number of magnetite-galena-sphalerite boulders were found on Anomaly 3. Material found near the anomalies shown in figure 9, sheet 2, although partially decomposed, resembles that found on Anomaly 3 and it is reasonable to assume a basic similarity of mineralization in their respective source rocks.

COMMENTS

The 1965 efforts by Yukon Pacific Prospecting Group in the BM area were designed to permit an evaluation of the merits of mineralized areas found by prospectors during the 1964 field-season. This goal was not fully realized, mainly because the two man crew equipped with hand tools was not able to satisfactorily cope with boulder and permafrost conditions encountered. Sampling indicates that the grade of lead, zinc and silver of the mineralized areas is sufficiently high to be of continued interest. The surface areas of the mineralized zones as suggested by the configuration of magnetic anomalies are small but these may be the surface projections of inclined ore bearing structures. Bulldozer stripping or modest diamond drilling operations are required to satisfactorily investigate the possibilities of the various showings and anomalies, in particular of Anomaly 3 and the anomalies southeast of Crutch and to give more details of the structure of mineralized zones.

STATEMENT OF COSTS

Wages:	
Trenching Crew - two men from June 15th to August 15th, 2 months at $500 per man per month plus 15% for medical insurance, unemployment insurance workmen's compensation, holiday pay	$2300
Geologist - 20 field days at $650 per month plus 15%	500
Camp expenses - 150 man days @ $5/day	750

Rental on magnetometer - 1 month at $100/mo.	100
Preparation of reports:	
materials, ozalid printing, typing	50
Geologist - 8 days at $650/mo. + 15%	200
Total	$3900

The above detailed costs do not include: cost of packhorses, airplanes and helicopters, assays, operation of Cobra drill, dynamite, overhead, equipment and tools.

DECLARATION

I, Erik A. Ostensoe, geologist, hereby declare that

1. I am a qualified geologist, presently residing in Kingston, Ontario.
2. I am a 1960 graduate in geology of the Honours Bachelor of Science course of the University of British Columbia
3. I practiced geology as my full-time occupation from May 1960 until September 1964 under the supervision of qualified and experienced geologists and engineers.
4. at the time of examination of the property herein reported on, I was employed as a geologist by Yukon Pacific Prospecting Group
5. I have no interest, either directly or indirectly, in the property herein reported on
6. I am at present a candidate for the Master of Science degree at Queen's University, Kingston, Ontario.

Signed at Kingston, Ontario, this 15th day of February, 1966,

in the presence of

Ray A. Riley

Erik A. Ostensoe

BM 32 M·C·

BM 30 M·C·

BM 28 M·C·

BM 31 M·C·

BM 29 M·C·

BM 26 M·C·

"CRUTCH"

BM 27 M·C·

BM 25 M·C·

Granite: biotitic, alaskitic

Schist: granitized sed'y rocks
schistose granite

Skarn: epidote diopside with ga-sph.

Marblized limestone

Bedding attitude 78

Schistosity 84

FIGURE 3.

GEOLOGY
of part of
BM No. 9 Claim Group

MAP 105-H-7

SOUTHEASTERN YUKON

Yukon Pacific Prospecting Group

1965

Scale 1" = 100'

E· Ostensoe.

BM 32 M·C·

BM 30 M·C·

BM 28 M·C·

BM 31 M·C·

Anomaly 1

Anomaly 3

Anomaly 2

BM 29 M·C·

BM 26 M·C·

"CRUTCH"

BM 27 M·C·

BM 25 M·C·

CAMPSITE

FIGURE 9

SHEET 1
Magnetometer Survey of part of BM No. 9 Claim Group

MAP 105-H-7

SOUTHEASTERN YUKON

Yukon Pacific Prospecting Group

1965

Scale 1" = 100'

Magnetometer Readings Plotted in Degrees

1 degree = 218·1 gammas

N

E· Ostensoe.

"CRUTCH"

BM 26 M.C.

BM 25 M.C.

B.M. 24 M.C.

B.M. 23 M.C.

BM 45 M.C.

Sheet 1

Sheet 2

LAYOUT (approx)

FIGURE 9.

SHEET 2
Magnetometer Survey of part of BM No. 9 Claim Group

MAP 105-H-7

SOUTHEASTERN YUKON

Yukon Pacific Prospecting Group

1965

Scale 1" = 100'

Magnetometer Readings Plotted in Degrees

1 degree = 218·1 gammas

N.B. Add 100·00 to all four-digit readings.

E. Ostensoe.

Report of Trenching, Geological Mapping and Magnetometer Survey, BM No. 1 Claim Group, Mount Billings Area, Southeastern Yukon.

Sheet 105-H-7

61°19'N lat., 128°43'W long.

Yukon Pacific Prospecting Group

August to September 1965 Erik A. Ostensoe

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LIST OF FIGURES AND TABLES

INTRODUCTION

This report is a record of geological and geophysical field work and physical representation work performed on claims of the BM #1 claim group by the writer and other employees of Yukon Pacific Prospecting Group. This work was done in August and September 1965.

CLAIMS

The BM #1 claim group consists of fifteen full-sized mineral claims:

Claim Name	Record Number
BM #1	88869
2	88870
13	88881
14	88882
19	88889
47	88937
48	88938
49	88951
50	88952
51	88953
52	88954
53	88955
54	88956
55	88957
56	88958

These claims were staked in August and September of 1964 by employees of Yukon Pacific Prospecting Group and have been grouped, for the purpose of applying assessment work, in accordance with Section 53(4) of the Yukon Quartz Mining Act.

LOCATION

Figures 1 and 2 indicate the location of the BM #1 Group of mineral claims. They are at 61°19'N latitude; 128°43'W longitude, in the Logan Mountains physiographic subdivision of the Interior System of the Cordillera[1]. three miles southeast of a divide between tributaries of Frances and Hyland Rivers. Elevations of the claims range from 4100 to 5500 feet above sea level.

Geological mapping, geophysical survey and physical representation work were done on Claims BM #1 and #2, beside and close to a small southwesterly flowing stream that was, for reference, called "47 Creek".

CAMP

A camp was established at tree line about 3000 feet southwest of the trenching area. Some of the work was done from the Yukon Pacific Prospecting Group base camp three miles to the northwest. Camps were moved and serviced by pack horse and helicopters and some supplies were transported from Watson Lake to "Kern Lake", about six miles south of the claims, by Beaver aircraft.

CLIMATE AND VEGETATION

The climate of mountainous parts of southeastern Yukon is severe. Except on south-facing slopes, snow to

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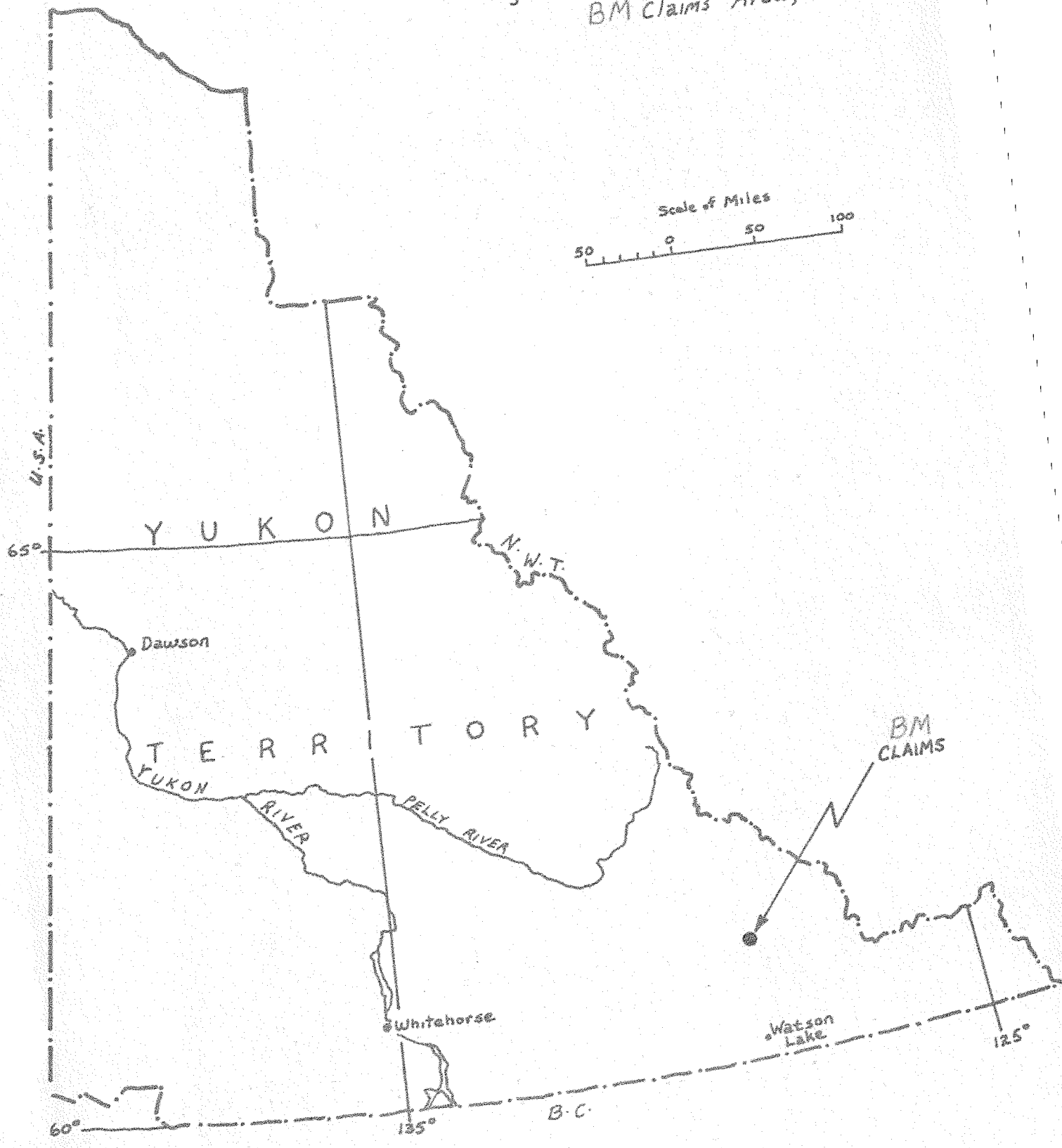
1. Bostock, H. S. 1948, Physiography of the Canadian Cordillera, Geol. Surv. Can., Mem. 247.

Figure 1. Location Map
BM Claims Area, Y.T.



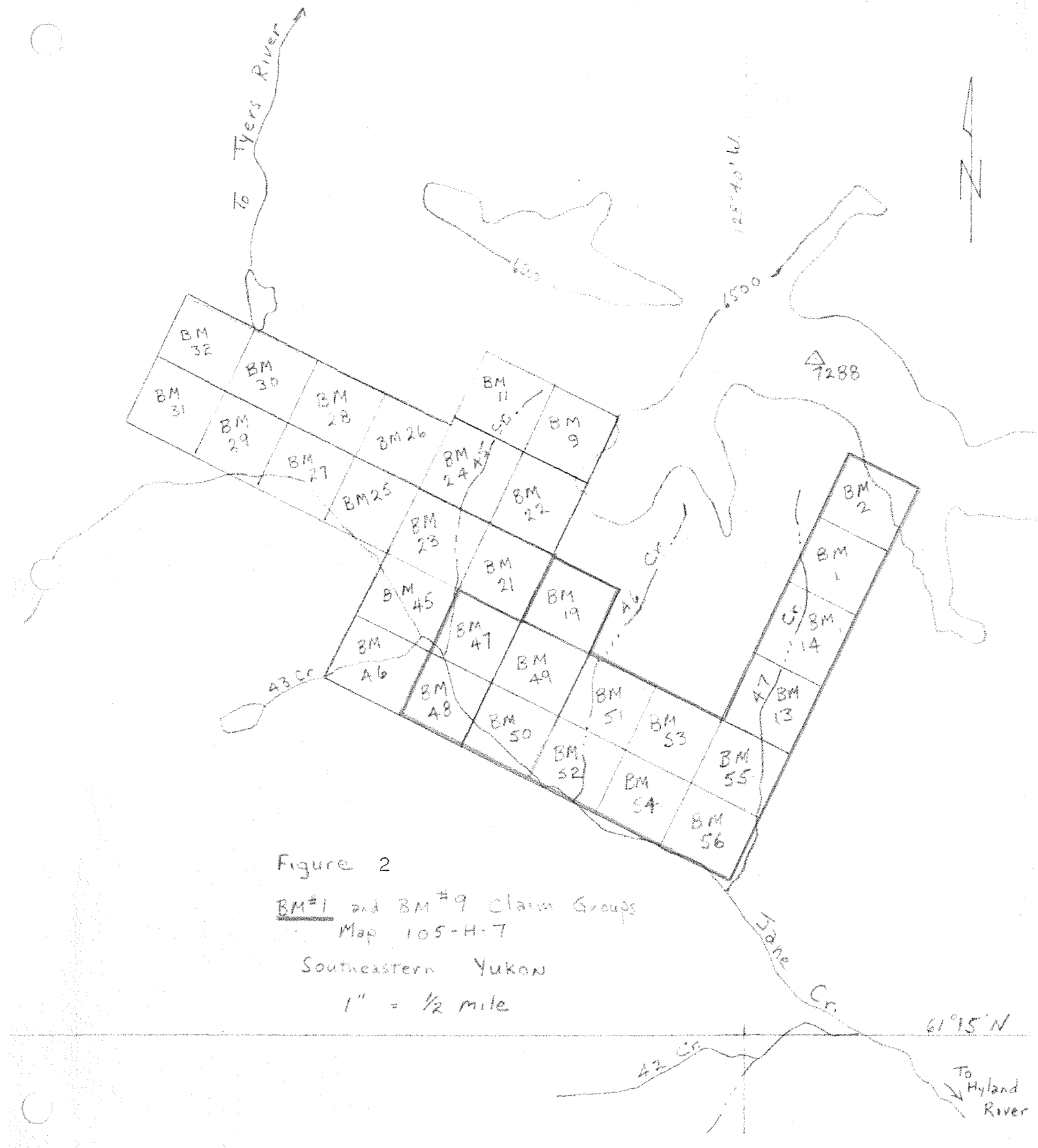


Figure 2

BM #1 and BM #9 Claim Groups
Map 105-H-7
Southeastern Yukon
1" = ½ mile

depths of several feet covers the areas above 4000 feet until late June. In the summer months temperatures may exceed 75°F and rainfall is moderately heavy. In 1965, sharp frosts with snowfall were experienced in late August and early September at the site of trenching efforts on claims BM #1 and #2.

The work herein reported was performed above timberline in a cirque formerly occupied by a hanging glacier. Except where 47 Creek has eroded a narrow valley, this area is covered by glacially deposited gravels and boulders or by talus. Ground cover consists of moss, grass, dwarfed willows and alpine flowers. At lower elevations, forest growth is light and broken by meadows and muskegs. Underbrush of ground birch and blueberry bushes is moderately thick. During winter and early summer all areas above timberline and some stream courses below timberline are subject to avalanches.

ACCESS AND COMMUNICATIONS

Servicing of operations in the BM #1 claim group area involved the use of helicopters, fixed-wing aircraft and pack horses. Mile 48 on the Cantung Road (107 road miles from Watson Lake) is about 20 miles by trail east of the property. The trail is an improved game trail and has numerous boggy sections that render it unsatisfactory fo use by horses.

After break-up in mid-June personnel and supplies were taken by Beaver aircraft to "Kern Lake" about six air-miles south-southeast of claims of the BM #1 group.

This lake is a former beaverpond the water level of which was raised by the construction of a log dam at its outlet. Its longest dimension is about 1500 feet and landings were made only when favorable wind conditions prevailed. Pack horses were used to relay supplies from Kern Lake to the BM area base camp and again when a camp was established on 47 Creek. Attempts to move trenching and camp gear to the 47 Creek site by helicopter were frustrated by strong downdraft conditions encountered in the narrow valley. Due to the hazard created by these winds, horses were relied upon for packing and moving.

Short wave radio communications between the BM area base-camp and both Watson Lake and Whitehorse were maintained on a regular basis.

PERSONNEL

Dale Duncan, of Watson Lake, Y.T. was engaged in trenching work and ancillary duties on claims of the BM #1 group from mid-August until September 3, 1965. He is an experienced miner and holds a blaster's certificate. Bradford Callison, of Rose Prairie, B. C., was employed as horsewrangler and assistant to Duncan during the same period. Peter Allen, of Watson Lake, was employed for one week as assistant to the geologist. Erik A. Ostensoe, geologist, supervised the BM claims area work, mapped the area close to the mineralized outcrops on 47 Creek and did the magnetometer survey. Gavin Dirom, P. Eng. of American Smelting and Refining Company, visited the property in September, 1964 and recommended that claims be staked and

that a limited investigation be made of the mineralized area. Mr. Dirom briefed the geologist at the start of the 1965 season, was available for consultation in Watson Lake at various times during the summer and visited the area from September 13 to September 17, 1965.

GENERAL GEOLOGY

No geological maps of the Mount Billings-Tyers River area have been published and the writer made little attempt to record regional geological data. Several occurrences of sulfide mineralization have been discovered in the area by employees of Yukon Pacific Prospecting Group, Mount Billings Venture and Norquest Joint Venture.

Granitic rocks that outcrop less than one mile north and east of claim BM #1 are part of a stock or batholith that was reported by prospectors to occupy a large part of the region. A resistant, blocky-fracturing, cliff-forming rock type, this granite forms most of the high ridges of the area.

About three miles northwest of BM #1 claim, sulfides and magnetite occur as lenses in skarned sedimentary rocks near their contact with the granite. These occurrences have been explored by a limited amount of trenching and a magnetic survey but their extent and nature are poorly known. Unmineralized leucocratic (alaskite) granite dykes are present in or close to all mineralized outcrops in the area. The sedimentary rocks consist of recrystallized limestone (marble) and thoroughly metamorphosed thinly banded rocks in which the original

textures and minerals have been completely obliterated by the development of garnet, epidote, diopside. Granitic gneiss, apparently formed by granitization, is also present. Mineralization is characterized by galena and sphalerite with varying amounts of magnetite and chalcopyrite. The silver content of sulfide-mineralized rock varies from very little to more than 20 ounces per ton.

In the 47 Creek area completely dissimilar geological conditions prevail. Outcrops are restricted to the sides of a narrow channel incised by 47 Creek below the base level of a hanging valley. About three quarters of mile southwest of claim BM #2 the slope of the valley floor steepens abruptly at the edge of the lower level southeasterly trending valley of "Jane Creek" a tributary of Hyland River.

Near the BM #1 and #2 claim location line (figure 3) slightly metamorphosed dark green to grey-black sedimentary rocks of volcanic derivation underlie a 20 to 30 foot thick white-weathering marblized limestone horizon. The limestone is overlain by rusty weathering black laminated hornfels or meta-argillite.

For a distance of about 2000 feet southwest of BM #2 claim the surface of the limestone bed is exposed in the stream bed and a few hundred feet upstream from the location line the limestone again outcrops in the creek bottom. The limestone strikes approximately north 42 degrees west and dips about 45 degrees southwest but

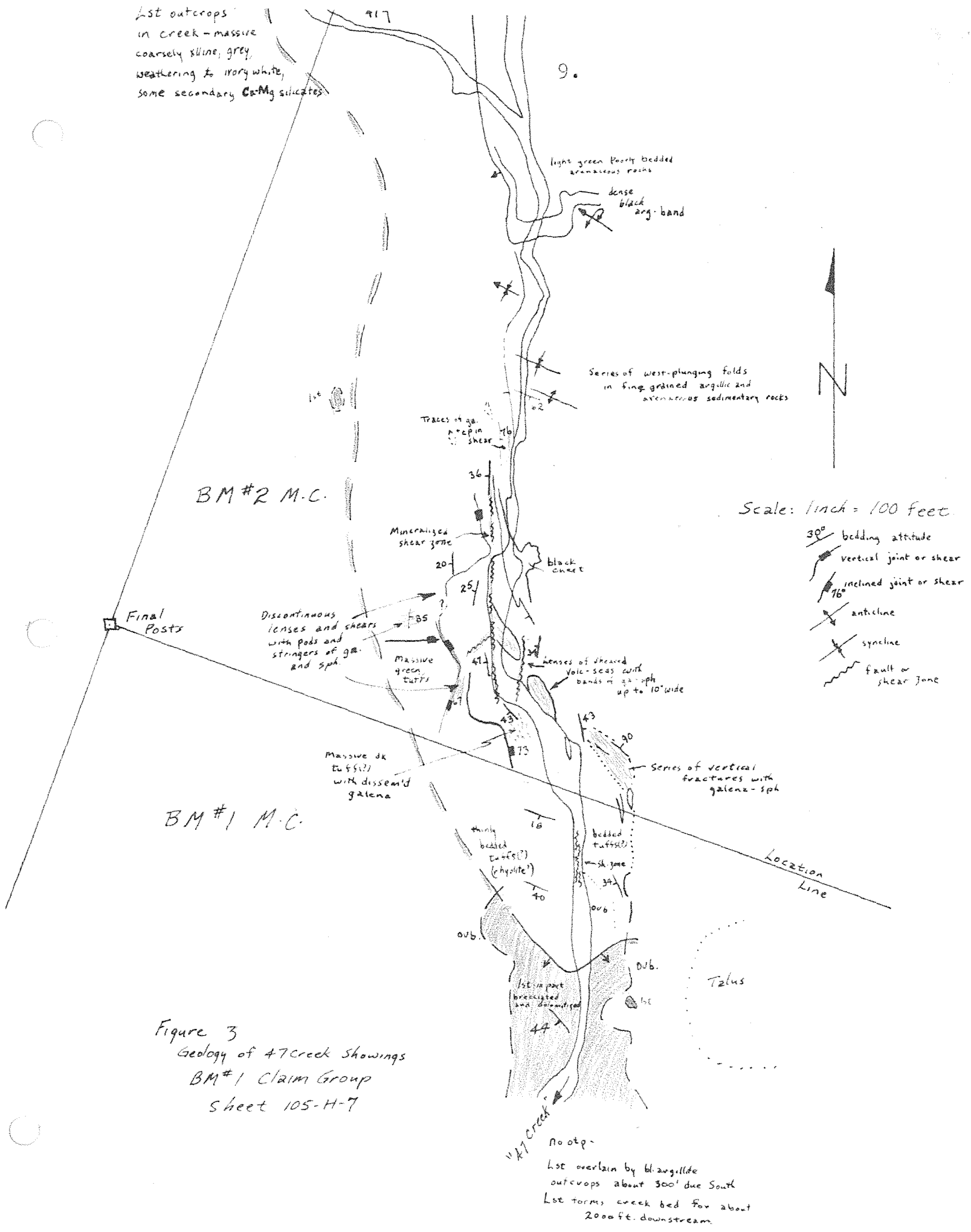


Figure 3
Geology of 47 Creek Showings
BM #1 Claim Group
Sheet 105-H-7

No otp -
Lst overlain by bl. argillite outcrops about 300' due South
Lst forms creek bed for about 2000 ft. downstream

this attitude is locally distorted due to crumbling and warping. In the area of BM #1 location line the limestone is folded into a west-plunging anticlinal structure and underlying sedimentary rocks are exposed where 47 Creek has cut a channel below the base of the limestone. The sedimentary rocks that underlie the limestone are complexly folded and faulted. The creek bed has been excavated in part along a zone of north trending fractures and one or more faults.

The only sulfides present in the sedimentary rocks in significant amounts are galena and sphalerite. Chalcopyrite was noted near the limestone contact and in one shear zone.

MAGNETOMETER SURVEY

An Askania "Schmidt-type" vertical balance tripod-mounted magnetometer was used in the magnetic survey. This instrument consists of a magnet pivot-mounted near its center of mass. The magnetic field of the earth creates a torque around the pivot that is opposed by the torque of the gravitational pull upon the center of mass. The angle at which equilibrium is reached depends upon the strength of the vertical magnetic field at the observation point. This angle is recorded in degrees of inclination. The conversion constant of the instrument used was one degree equals 218.1 gammas.

In mineral exploration variations in the strength of the vertical magnetic field are determined by comparisons

of values obtained from a series of observations. A rectangular grid for mapping and magnetometer surveys was laid out on the BM #1 and #2 claims with the final posts of these claims at its northwest corner (figure 4). Grid lines were spaced at 25 foot intervals along a base line that ran due east from the posts and magnetometer observations were taken at 25 foot spacings along these lines. The lines were measured using a nylon cord-type "chain" and their directions were surveyed by Brunton Compass.

No significant variation in the intensity of magnetic field strength was revealed by the magnetometer survey. Maximum reading was 130.61 degrees (28486 gammas); the minimum, 128.40 degrees (28,004 gammas).

TRENCHING

Trenching was designed to permit examination of freshly-broken ore mineralization, to extend known mineralized zones and to facilitate the search for further ore mineralization. Hand tools, dynamite and a portable gasoline-powered "Cobra" rock drill were used. Only superficial overburden was encountered and bedrock was solid, permitting maximum use of the Cobra drill. Trenches are indicated on figure 5.

The following representation work was performed on BM #2 claim of the BM #1 claim group:

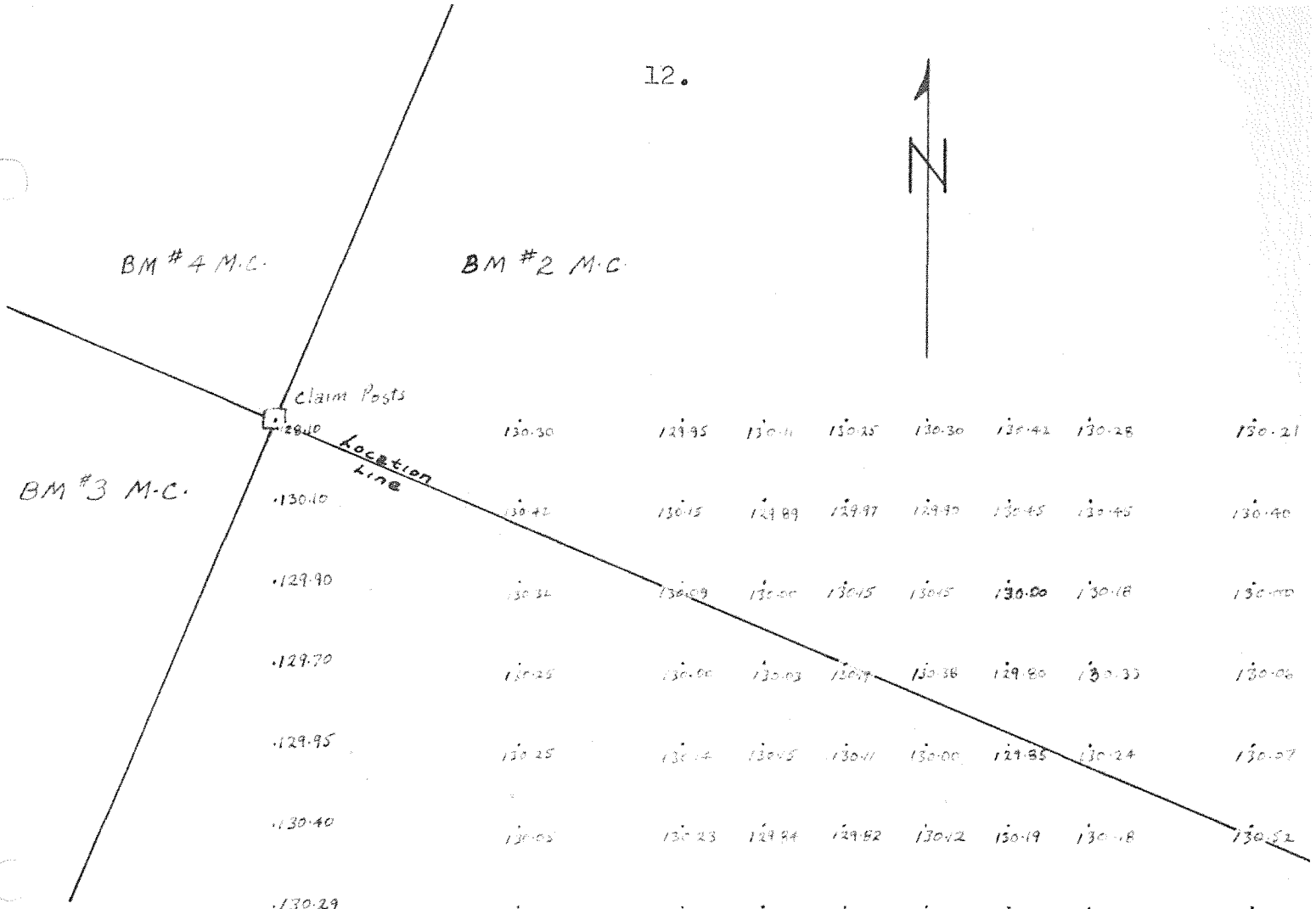


Figure 4

Magnetometer Readings

BM #1 and #2 M.C.

Map 105-H-7

Southeastern Yukon.

Scale: 1 inch = 50 feet.

Readings plotted in degrees.

1 degree = 218.1 gamma

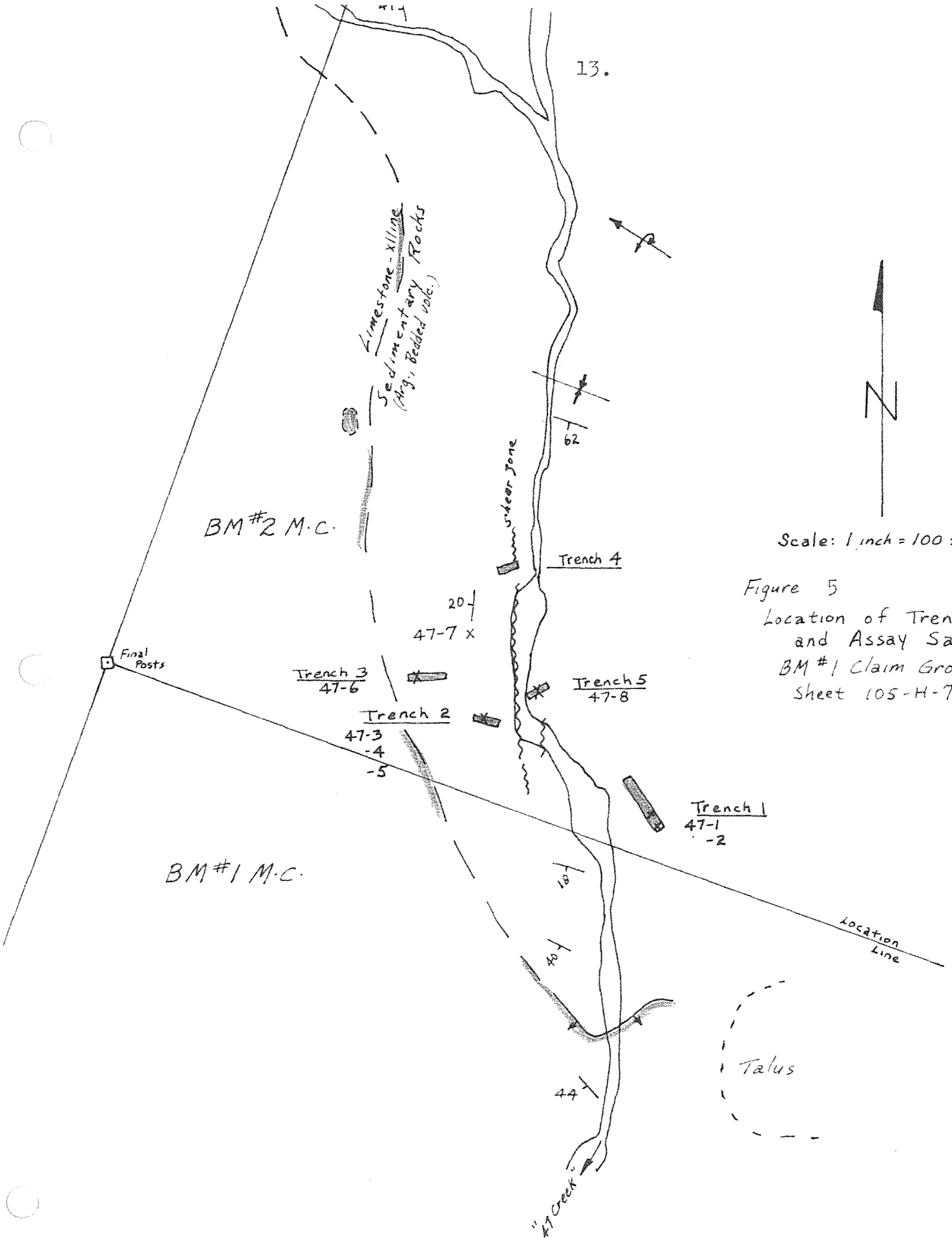


Figure 5
Location of Trenches and Assay Samples
BM #1 Claim Group
Sheet 105-H-7

Trench #1 -	20'x4'x3½', 13'x3'x3', 18'x4'x3'	= 22.7 cu. yds bedrock
2 -	18'x3'x2'	= 4
3 -	16'x3'x2'	= 3.5
4 -	12'x3'x3'	= 4
5 -	10'x3'x3'	= 3.5
	Total	37.7 cu yds bedrock

It is believed that this work was performed in accordance with the provisions of Section 53 of the Yukon Quartz Mining Act and the Schedule of Representation Work, January 1963 and hence that it may be applied as representation work on claims of the BM #1 group at the rate of $25 per cubic yard.

SAMPLING

Eight samples of mineralized rock from BM #2 claim were assayed for silver, lead and zinc. Silver values vary from less than one-half ounce per ton to 2.30 ounces per ton. Combined lead and zinc content ranges from 2.1 to 8.5 per cent.

Samples were selected from various trenches and were cut by using a hand moil and hammer. Analysis was by Whitehorse Assay Office.

Sample locations are indicated on figure 5 and assays are listed in Table 1.

Table 1: Assays of samples from the BM #1 Claim Group

Sample	Gold	Silver	Lead	Zinc
47-1		1.18	3.3	2.2
2		1.30	4.6	3.0
3		2.30	2.2	1.4
4		1.76	2.5	1.5
5	Tr.	.26	1.1	1.0
6		.42	2.7	1.8
7		2.08	5.5	3.0
8		1.68	5.1	3.4

CONCLUSIONS

The geologist was unable to satisfactorily map the rather complex structural details of the sulfide mineralized rocks on claims BM #1 and #2. Several structural and stratigraphic ore controls were obvious:

1. Sulfides are restricted to sedimentary rocks in the vicinity of the sedimentary rock - recrystallized limestone contact
2. Most of the sulfides are found in fracture zones. Some galena occurs disseminated in the sedimentary rocks.
3. Sulfides occur in narrow fracture-controlled bands in pod-shaped areas outlined by and penetrated by fractures.
4. At least one fault is recognized in the channel of 47 Creek.
5. The limestone is folded but because it has been recrystallized few internal structures can be traced.

6. The bedded sedimentary rocks have been very complexly folded along west-northwesterly striking axes.

No knowledge of the vertical extent of the sulfide bearing zone was gained from the 1965 efforts in this area but its total strike length appears to be little more than 300 feet.

Ore making possibilities have not been thoroughly investigated but in view of the remoteness of the location and the generally discouraging metal values encountered to date, further work on the 47 Creek showings cannot now be contemplated. It is possible that the main ore controls are the folding, in which case ore mineralization may persist on the underside of the down plunge (westerly) extension of the anticlinally folded limestone. The ore mineralization was found in the only exposure in the area of the formation that underlies the limestone.

SUMMARY OF REPRESENTATION WORK

1. Expenditures incurred in geological and magnetometer surveys:

Geologist- 1 day, July 9, 1965, reconnaissance
5 days - mapping, magnetometer survey, sampling
2 days - preparation of reports

Total - 8 days at $650/month + 15%	$202
Helper - 7 days at 15/ day	105
Camp Costs - 13 man days at $5/man day	65

Assays - ½ paid by government - net charge to the company	32
Transportation - August 22nd and September 19th - Beaver aircraft, Watson Lake to Kern Lake and return. Total of 4 hours at $90/hr of which one-half is chargeable to BM #1 claim group work	180
Sub Total	$ 584.00
2. Trenching - 37.7 cu yds bedrock at $25/cu yd	$ 942.50
Total	$1526.50

DECLARATION

I, Erik A. Ostensoe, geologist, hereby declare that

1. I am a qualified geologist, presently residing in Kingston, Ontario.
2. I am a 1960 graduate in geology of the Honours Bachelor of Science course of the University of British Columbia
3. I practiced geology as my full-time occupation from May 1960 until September 1964 under the supervision of qualified and experienced geologists and engineers
4. at the time of examination of the property herein reported on, I was employed as a geologist by Yukon Pacific Prospecting Group
5. I have no interest, either directly or indirectly in the property herein reported on

6. I am at present a candidate for the Master of Science degree at Queen's University, Kingston, Ontario.

Signed at Kingston, Ontario, this 23rd day of March, 1966,

Erik A. Ostensoe

Erik A. Ostensoe