

REPORT ON BEAR MOLYBDENUM PROPERTY
CARCROSS, YUKON TERRITORY

FOR

GUI-POR URANIUM MINES AND METALS LTD.

INTERNATIONAL MINE SERVICES LTD.

by

M. D. Kierans, M. A., P. Eng.

Geological Engineer

Latitude $60^{\circ} 10'$

Longitude $134^{\circ} 45'$

Field Work Period August - November 1966

Report submitted December 27th, 1966.

REPORT ON BLAF MOLYBDENUM PROPERTY
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ILLUSTRATIONS

	<u>Subject</u>	<u>Scale</u>
Figure 1	Location Map	No scale
Figure 2	Claim Map	1" = 1/2 Mile
Figure 3	Picket Lines	1" = 1/2 Mile
Figure 4	Generalized Soil Sample Map	1" = 1/2 Mile
Figure 5	Soil Sampling and Topographic Map	1" = 400'
Figure 6	Geological and Claim Map	1" = 400'
Figure 7	No. 2 Showing	1" = 100'
Figure 8	Bulldozer Trenches 1 and 4	1" = 40'
Figure 9	Bulldozer Trenches 2 and 3	1" = 40'

ABSTRACT

The 57 claims of Gui-Por Uranium Mines and Metals Ltd. known as the Bear Molybdenum Property near Carcross, Yukon Territory is very favorably situated for bulk transportation via railroad to a tidewater port (Skagway) only 67 miles away. Any problems posed by climate and topography would be readily and cheaply solved.

An extensive soil sampling and geological mapping program on the claims showed 5 coincident copper and molybdenum soil anomalies. The largest two of these are 3000' x 3000' (combined). The zone in which the anomalies lie is 3000' x 8000' aligned in a N.W. direction which is parallel to a suspected regional N.W. lineament along which other molybdenum prospects are found in this region. The copper molybdenum mineralization is in 3" quartz vein stockworks and in the adjoining wall-rock -- as seen in No. 2 showing in the periphery of the soil anomalies. The host rock is mostly granite and granodiorite with some molybdenite mineralization in quartzite.

An additional 15 miles of picket lines, an induced polarization survey and additional geochemical sampling over the claims on the new lines (and old samples for Au, Pb, Zn) is recommended at a cost of \$11,500. Costs for the program for 1966 to date are given in an appendix.

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INTRODUCTION

The purpose of this report is to describe as briefly as possible, exploration work and results of that work on a property near Carcross, Y. T. optioned by Gui-Por Uranium Mines and Metals Ltd. from co-owners, Edgar Bear and Joe James of Carcross and Tom Connelly of Atlin B. C. This exploration program (1966) consisted, mainly, of an extensive soil sampling program over the entire area of the optioned property (including company-owned adjoining claims), geological mapping and bulldozer trenching. Results of this work are shown in the accompanying maps and are discussed below. Recommendations are made and estimated costs for the recommended program are included. Actual costs for the completed (1966) program are given as an appendix for assessment purposes.

LOCATION, ACCESS, CLIMATE AND TOPOGRAPHY

Property location is shown in figures 1 and 2. The White Pass and Yukon Railroad passes through Carcross, which is about one mile north of the property. It is only 67 miles from Carcross on this railroad to the port of Skagway, in Alaska, on tidewater. From Whitehorse (the inland terminal of the White Pass and Yukon Railroad), on the Alaska Highway, to Carcross is a distance of 46 miles by good gravel road. A secondary tote road from Carcross to the property of Arctic Mining and Exploration Co. Ltd. passes through the center of the claim group. This tote road is passable for 2-wheel drive vehicles, except in winter or during heavy rains. Obviously, then, accessibility is one of the more favorable features of this property. Also wind and cold will not pose serious problems -- for open pit operations -- because the property elevations range from 2200 feet to about 3500 feet, which is well below tree line.

Exploration and development are best carried out in summer when there is an abundance of melt water for drilling -- and snow and cold do not hinder operations. However, there is no reason why diamond drilling and trenching could not be carried on in the winter months, if necessary. Temperatures of -60° are experienced frequently in Carcross and extended periods of -30° in January and February are common but precipitation is light and the weather is dry -- with not much wind at lower elevations.

Coniferous trees with some hardwoods blanket most of the claims area. Soil, glacial till and permafrost cover most of the claims area and outcrops are not common. Overburden is at least 10 feet deep in some places and, probably, is considerably deeper than that in others. Permafrost did not hinder bulldozer trenching and would probably be not a serious problem at any time.

The claims, in general, are on ground with moderate slopes to the north towards the shore of Bennet Lake. Here and there the slopes are sharp. But there are large areas of flat terrain (at about 3200' elevation) on the south and west sides of the claim group. Above the property Montana Mountain rises to maximum elevations of about 7,000 feet. Any open pit operation from these claims would be favored with downhill haul to the railroad.

There is an abundance of water for milling. There are large areas of flat land near Carcross for mill or townsite construction and tailings disposal.

HISTORY AND OWNERSHIP

The No. 1 Molybdenum showing (see Figure 3) was known for some time to local prospectors and there is evidence that the showing was trenched quite a few years ago by previous unknown owners. The No. 2 showing was uncovered during assessment trenching in the winter of 1965. Staking of the Tincup claim group (see Figure 2) took place in February, 1966. The claims were optioned by J. L. Tindale for Gui-Por Uranium Mines and Metals Ltd. in May 1966.

There are 57 claims in the claim group on which Gui-Por Uranium Mines and Metals worked in the 1966 exploration season. These consist of the following groups. For assessment purposes the claims are grouped as follows:

<u>Group Number</u>	<u>Registration "Tag" Numbers</u>	<u>Number of Claims</u>
<u>Group #1</u>		
Bear 1-11 inclusive	Y10007 - Y10014 inclusive Y10321 - Y10323 inclusive	11 claims
<u>Group #2</u>		
Tincup		
21 - 32 inclusive	Y1940 - Y1950 inclusive	12 claims
<u>Group #3</u>		
Tincup		
10, 11, 14, 15, 18, 19, 33-38 inclusive	Y1928, Y1929, Y1932, Y1933, Y1936, Y1937, Y5579-5584 (inclusive)	12 claims
<u>Group #4</u>		
Tincup		
9, 12, 13, 16, 17, 20, 1-8 inclusive	Y1927, Y1930, Y1931, Y1934, Y1935, Y1938, Y571-Y579 inclusive	14 claims
<u>Group #5</u>		
Liz		
1-8 inclusive	Y10829 - Y10836 inclusive	8 claims
	Total	<u>57 claims</u>

It is obvious that there is some overlapping of claims and the claim pattern is intricate. Considerable field time was spent unravelling the claims picture. Please see Figure 6 for details of claim pattern (and Figure 2). All claims in Groups 1 to 5 inclusive have been transferred to Gui-Por Uranium Mines and Metals Ltd.

REGIONAL GEOLOGY

The claims area lies on the north slope of Montana Mountain. This mountain is underlain by three general rock formations. The bedrock of the northeast corner of the mountain is composed of Paleozoic volcanic flow rocks of the Taku Group and the south and west portion of the mountain is underlain by Triassic - Jurassic sedimentary rocks of the Lewes and Laberge Groups. All of these rocks are intruded by granodiorite masses and plutons, which are outliers of the main Coast Range Batholith. The eastern margin of the Batholith lies near the west shore of Lake Bennett. Except for the eastern edge of the claim group, all of the Gui-Por claims are within granodiorite and granite intrusives.

The regional structure which seems most to affect the mineral occurrences of the claims is a N.W. trending lineament starting near Atlin, B. C. (where there are molybdenite showings) and continues Northwesterly toward Carcross along prominent valleys. There is a molybdenum showing about halfway along this lineament between Carcross and Atlin. There is on the claims a steep gorge with N.W. trend (see Figures 5 and 6). The general trend of geochemical anomalies found in the soil sampling is N.W. also. It would appear molybdenum mineralization in the region is spatially related to this lineament.

CLAIMS GEOLOGY

Many of the Coast Range molybdenum mines and prospects are composed of stockworks of quartz veins carrying molybdenite and chalcopyrite in varying amounts. The quartz vein stockworks normally cut granite and granodiorite intrusives of the Coast Range Batholith. In these respects the molybdenum showings of the Bear Property are conventional. This is, of course, an encouraging feature.

The massive granodiorite and granite of the claims is a white to grey, medium grained, euhedral, biotitic (in part) granitic rock with (where seen in outcrop and large angular boulders) very few quartz veins. The granite normally is barren of molybdenum and chalcopyrite mineralization. There is very minor molybdenite in the granite near Number 1 showing.

There is a prominent gorge (see figures 5 and 6) about 100' deep with steep walls, which trends Northwesterly across the property, starting near the east border and fading out near the middle of the claim block. The soil anomalies found in this summer's work follows the trend of this strong topographic feature. It is reasonable to assume (though it was not proven during the geological mapping) that this gorge follows a strong regional fault.

On the east margin of the claims near No. 2 showing (see figure 3 for location of Number 2 showing and Figure 2 for a sketch of this occurrence) there is a complex of siltstone, quartzite, volcanic dacite and rhyolite rocks. These rocks may trend N.W. or E-W. across the property under the overburden. Molybdenite mineralization was found in the quartzite near the quartz veins of the No. 2 bulldozed showing area (within a few inches of the quartz). Chalcopyrite and pyrite in trace amounts were found in the dacite outcrops near the molybdenite-bearing bulldozed outcrop of No. 2 showing.

The area in which the molybdenite occurs (confined almost exclusively to 3" thick quartz veins) is about 30' x 30'.

The Number 1 showing is about one-half of a mile east of the mine tote road and near the northern margin of the claim block. It is about one mile north of No. 2 showing (see Figure 3). Quartz veins up to 3" thick (average 2") cut the granite here on a dip slope of about 20°. Not many quartz veins were seen because of the dip slope feature of the quartz vein occurrence. Similar quartz veins are reported (1) to occur over an area of 2000 square feet. The molybdenite (as in No. 2 showing) occurs as thin plates, masses and blebs in fractures parallel to walls of the veins. According to J. L. Tindale (1) a five pound selected sample of the quartz vein assayed 1.22% Mo S₂. The writer had two chip channels cut (10' long), averaging 3 lbs. of rock each, in the best parts of No. 2 showing. Both samples ran 0.01% Mo S₂. This assay result appears to be low as visually there was apparently more MoS₂ in the rock than that.

SOIL SAMPLING AND BULLDOZER TRENCHING

Between August 24th and September 29th, 1966, approximately 40 miles of picket lines were cut on the 57 claim group of Gui-Por Mines and Metals Ltd. near Carcross, Yukon Territory. During the same period 1000 soil samples were taken - with duplicates kept for future reference. These soil samples were analysed for trace amounts of molybdenum. Later approximately 600 of the samples were analysed for presence of copper ions. The samples were taken by company personnel using conventional soil augers from a depth of 18" below surface. Most samples were taken from the picket line grid. About 25% of the samples were taken on pace and compass lines between tie lines and the base line. For the picket line pattern please see Figure 3.

When the analytical results were received they were plotted on Figure 5 at 1" = 400'. Geological mapping on the property was not quite completed before snow covered the outcrops about the middle of October. This mapping should be completed next year. However, it should be noted that most of the geology was mapped by "walking" picket lines and this geology is shown (with the claims) in Figure 6.

Between November 8 and November 19, 1966, 65 hours of bulldozer time (D7 Caterpillar) were spent in putting down trenches to attempt to uncover bedrock (and sample it) beneath some of the copper and molybdenum soil anomalies. The results of the trenching are shown in Figures 7 and 8 and will be discussed briefly below.

DISCUSSION OF SOIL SAMPLING AND TRENCHING RESULTS

Most samples were taken in glacial sand with a few in clay and sandy clay. These samples were sent to Mogensen Laboratory in Toronto for trace element analysis using the "quick" test for molybdenum. Later, over the molybdenum soil anomalies, the same samples were tested for trace amounts of copper. Please see Figure 3 for results of the soil sampling.

7 Molybdenum soil anomalies in an area of 8000' x 3000' are shown in Figures 4 and 5. Five coincident Copper and Molybdenum anomalies are shown. The largest two combined anomalies are C and D. Here values of Cu and Mo in parts per million range from 10-60 and 5-50 respectively. Only values higher than these are included in the coloured anomalous areas of Figure 5. Anomalies A and F are considered doubtful because they are on only one line and no copper values are found on them.

Geological mapping indicates that most of the anomalous zones are underlain by granite but there is a possibility that the contact of granite with quartzitic sediments and volcanics may trend parallel to the N.W. direction of the 8000' x 3000' anomalous area. The N.W. trending steep-sided gorge, mentioned earlier, lies within the anomalous band on the east. It is considered a favorable factor that both known Molybdenum showings (which are considered below overall commercial grade) are on the periphery of the good soil anomalies C and D and also that both showings give a much lower indication on the soil sample map than C and D.

Trenching failed to reach bedrock. The trench profiles and results are shown in figures 7 and 8. Locations of trenches are shown in figures 5 and 6. In two trenches 1 and 3, very large boulders of granite or perhaps barren granite outcrop were exposed. An attempt to dig a trench on line 12 N at 1 + 00 East and 4 + 00 East was frustrated by (a) large boulders (10' x 10' x 10') and (b) by swamp. Overburden is at least 10' deep in trenches 2 and 4 and 8' deep in trenches 1 and 3.

CONCLUSIONS

It is obvious that the coincident copper and molybdenum soil anomalies must represent concentrations of, most likely, chalcopyrite, pyrite and molybdenite sulphides in the granite bedrock. It is possible, but not likely, that the soil anomalies are due to mineralized float boulders in the overburden. Grade of the mineralized area is not known, of course, and cannot be deduced from the trace element analyses.

The area of the best soil anomaly is 3000' x 3000'. This is big enough for an open pit operation. There are chances that the mineralized zone may extend beyond this area, i. e. along a N.W. direction. It is not expected that commercial mineralization will extend the full length or width of the 8000' x 3000' zone.

RECOMMENDATIONS

It is recommended that, as a next step in testing the claims, about 15 miles of picket line should be cut at right angles to the existing picket line grid over the area of the soil anomalies. Induced polarization surveys should be carried on over this new set of picket lines. If I. P. anomalies are found then detail closer lines 100' apart should be cut over the best parts of these anomalies. These detail lines should then be tested with I. P. to locate drilling targets. The suspected chalcocite-pyrite-molybdenite mineralization ought to be detected by I. P. surveys. Check soil sampling using new samples ought to be carried out at 100' intervals on the new picket lines. These samples should be tested for Copper and Molybdenum. It is also recommended that the duplicate samples (stored in Carcross) be tested for silver, lead and zinc as it is possible that gold-silver-quartz veins of Arctic-Prima type may occur in the southern parts of the property. These veins, if they exist under the overburden, ought to be detectable by the soil sampling technique.

Depending upon results of the I. P. survey, diamond drilling to 300' depth at 45° inclination on a grid pattern over the I. P. anomalies (if any) is recommended.

COSTS OF RECOMMENDED PROGRAM

Costs for the first phase of the program only will be given below. The second phase will be diamond drilling and depending on results could involve \$75,000 or \$3000' at \$10.00 per foot of hole plus contingency expenses.

Picket lines	15 miles at \$100.00	\$1,500.00
I. P. Survey	15 miles at \$200.00	\$3,000.00
Salaries, etc.		\$2,000.00
Soil sampling and analyses		= \$3,000.00
Contingencies, travel etc.		= <u>\$2,000.00</u>
	Total	<u>\$11,500.00</u>

Respectfully submitted

M. D. Kieran
M. D. Kierans, M. A., P. Eng.
Geological Engineer

REFERENCES

- (1) TINDALE J. L. June 6, 1966.
Memorandum Molybdenite Claims - Carcross,
Yukon Territory.

- (2) WHEELER J. C. 1961, Memoir 312.
Whitehorse Map Area, Yukon Territory
Geological Survey of Canada.

Appendix A

SUMMARY OF COSTS

Wages	As detailed below	\$3700.00
Supplies	" "	1519.62
Travel and expences	" "	503.90
Transportation	" "	1650.00
Trenching	" "	1857.00
Telephone and telegram	" "	406.35
Assays	" "	713.50
Linecutting	" "	2308.15
		<u>\$8,658.52</u>

Expences on a per claim basis (57) \$222.07

Wages

J.L.Tindale,	Toronto Ont.	Consulting Geol.	Sept.1-Oct.31	425.00
M.Kierans,	Bathurst N.B.	" "	Sept.1-Dec.27	1000.00
W.McCrindle	Toronto Ont.	Field Geologist	Sept.21-Nov.1	600.00
R.St.Croix	Bathurst N.B.	Geol. Assist.	Sept.7-Nov.30	1000.00
J.Mather	Toronto Ont.	Geological Tech.	Aug.1-Aug.15	200.00
B.Seagraves	Toronto Ont.	Draftsman	Sept.10-Sept.30	200.00
J.Rigby	Toronto Ont.	Secretary	Sept.1-Nov.13	175.00
J.Rose	Toronto Ont.	Secretary	Sept.10-Sept.30	100.00
	Total wages in Aug.1 - Dec.27			<u>3700.00</u>

Supplies

Jens Mogensen (Geochem.)	587.00
Tourist Service	782.62
Hougens Ltd.	150.00
	<u>1519.62</u>

Travel and Expences

J.L.Tindale	252.70
W.M.McCrindle	251.20
	<u>503.90</u>

Transportation

Vechical rental	550.00
Taylor & Drury Motors Ltd.	1100.00
	<u>1650.00</u>

Trenching

Wm. Grant	<u>1857.00</u>
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Telephone and Telegram

C.N.Tele.

406.35

Assays

Jens Mogensen
Atlas Testing

652.00

61.50

713.50

Linecutting

Reg Wolfe
N.L. Doucet

1240.00

1068.15

2308.15

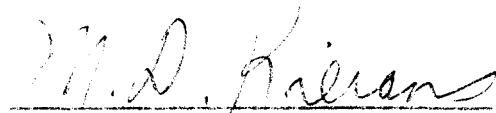
December 23, 1966.

CERTIFICATE

I, Martin D. Kierans, with residential address at 345 Hennessy Street, Bathurst, New Brunswick, do hereby certify that:

1. I am a non resident Member of the Association of Professional Engineers of the Province of British Columbia.
2. That I am a member of C. I. M. M. and Associate Member A. I. M. E.
3. That I am a graduate in geological sciences of the University of British Columbia (M. A. 1952) and McGill University (B. Sc. 1949).
4. That I have practised my profession as geological engineer and exploration and mine geologist for 18 years.
5. That I have no interest, either directly or indirectly in these claims of Gui-Per Uranium Mines and Metals Ltd. in the Carcross area nor do I expect to receive any such interest.
6. That the accompanying report is based on personal examination of parts of the property in August, September, October and November and on direct supervision of the work and on review of reports and papers describing geology of this area.

Dated this day of December, 1966, at Vancouver, British Columbia



Martin D. Kierans
Geological Engineer

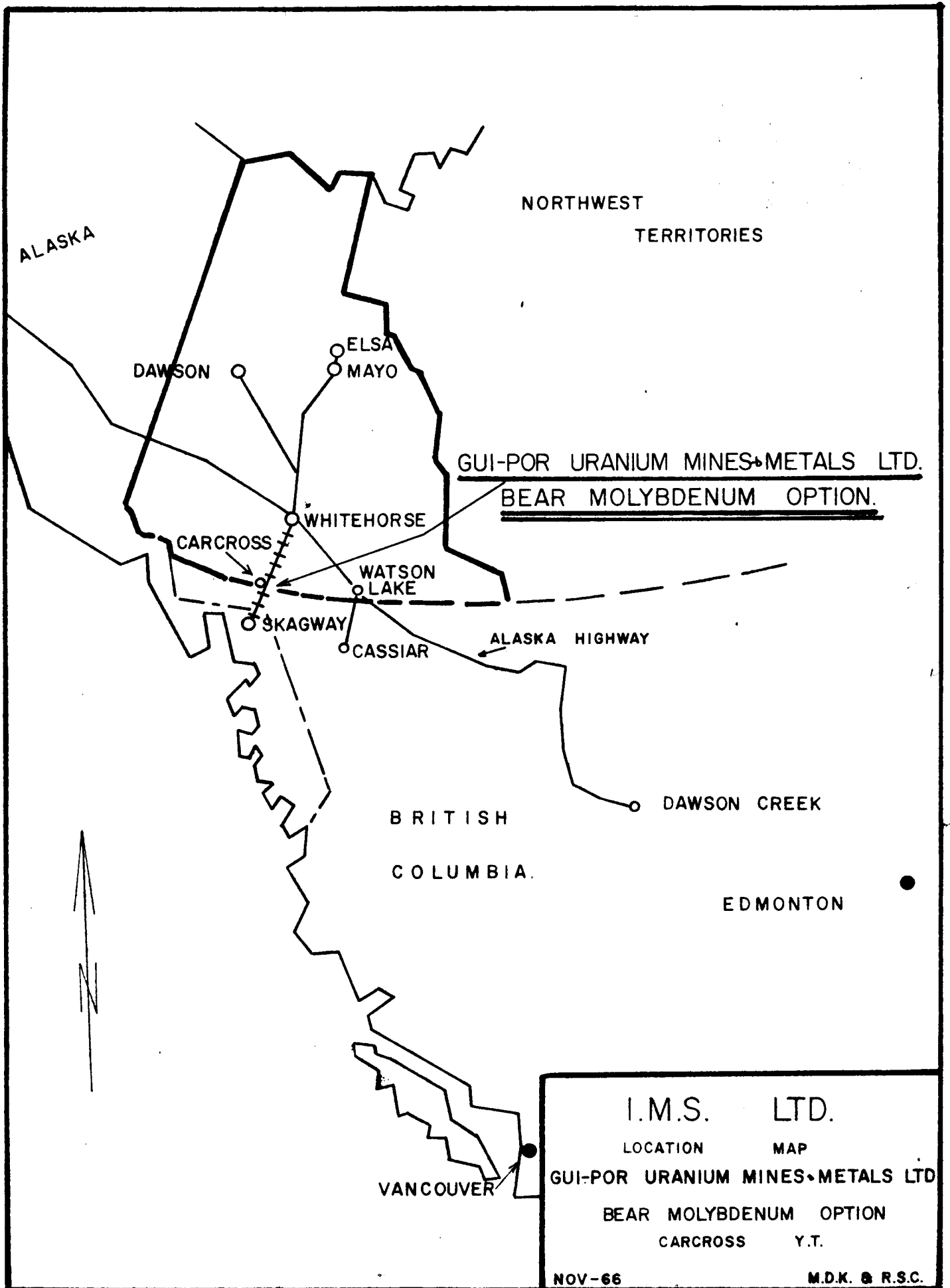
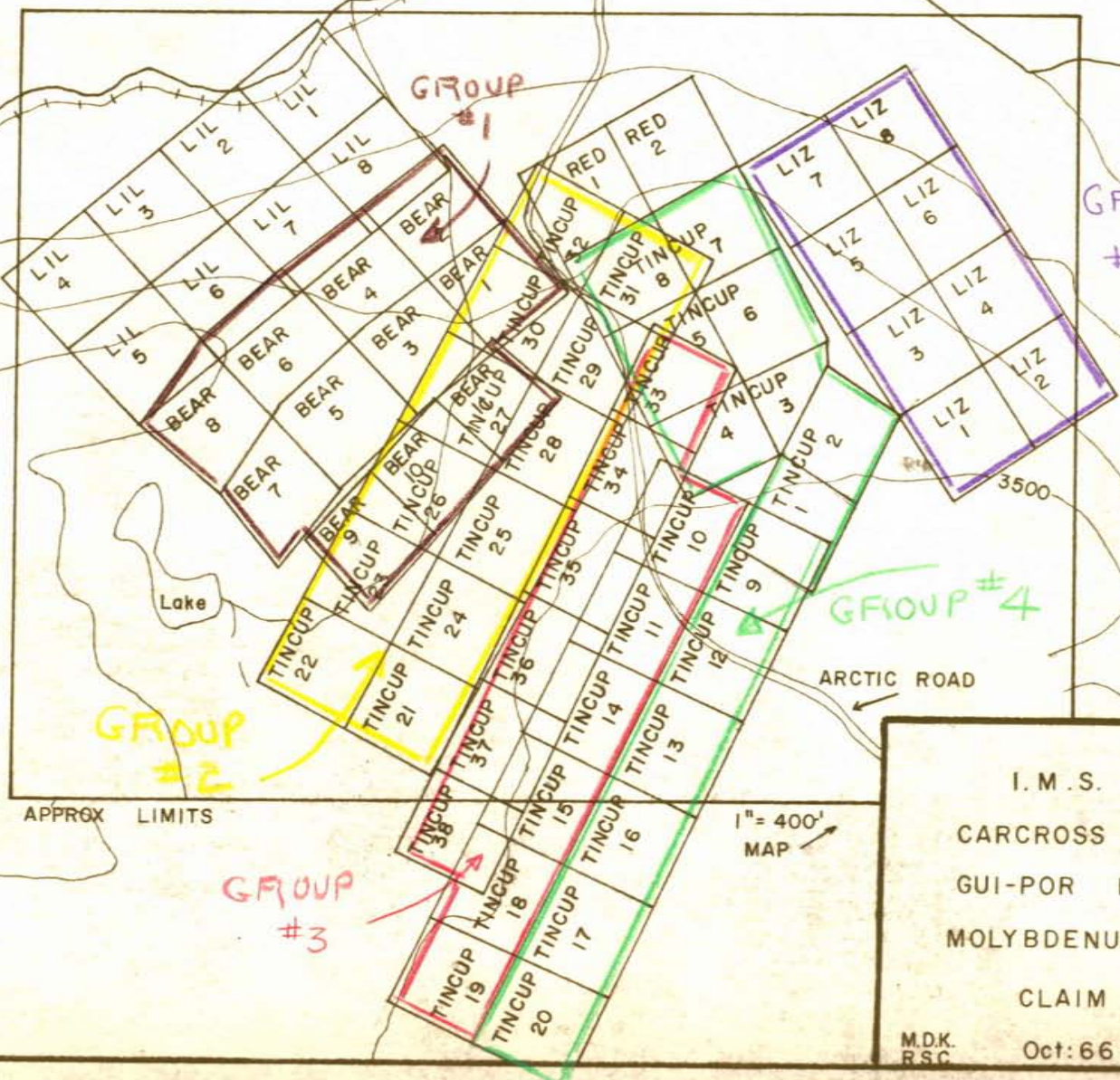


FIGURE *1



B E N N E T T L A K E
 C A R C R O S S
 N A R E S L A K E

W. P. & Y. R.
 2500
 3000



GROUP #2

GROUP #1

GROUP #5

GROUP #4

GROUP #3

APPROX LIMITS

1" = 400'
 MAP

I. M. S. LTD.
 CARCROSS YUKON
 GUI-POR MINES LTD.
 MOLYBDENUM PROSPECT.
 CLAIM MAP
 M.D.K. R.S.C. Oct:66 1" = 1/2 MILE.
 FIGURE 2

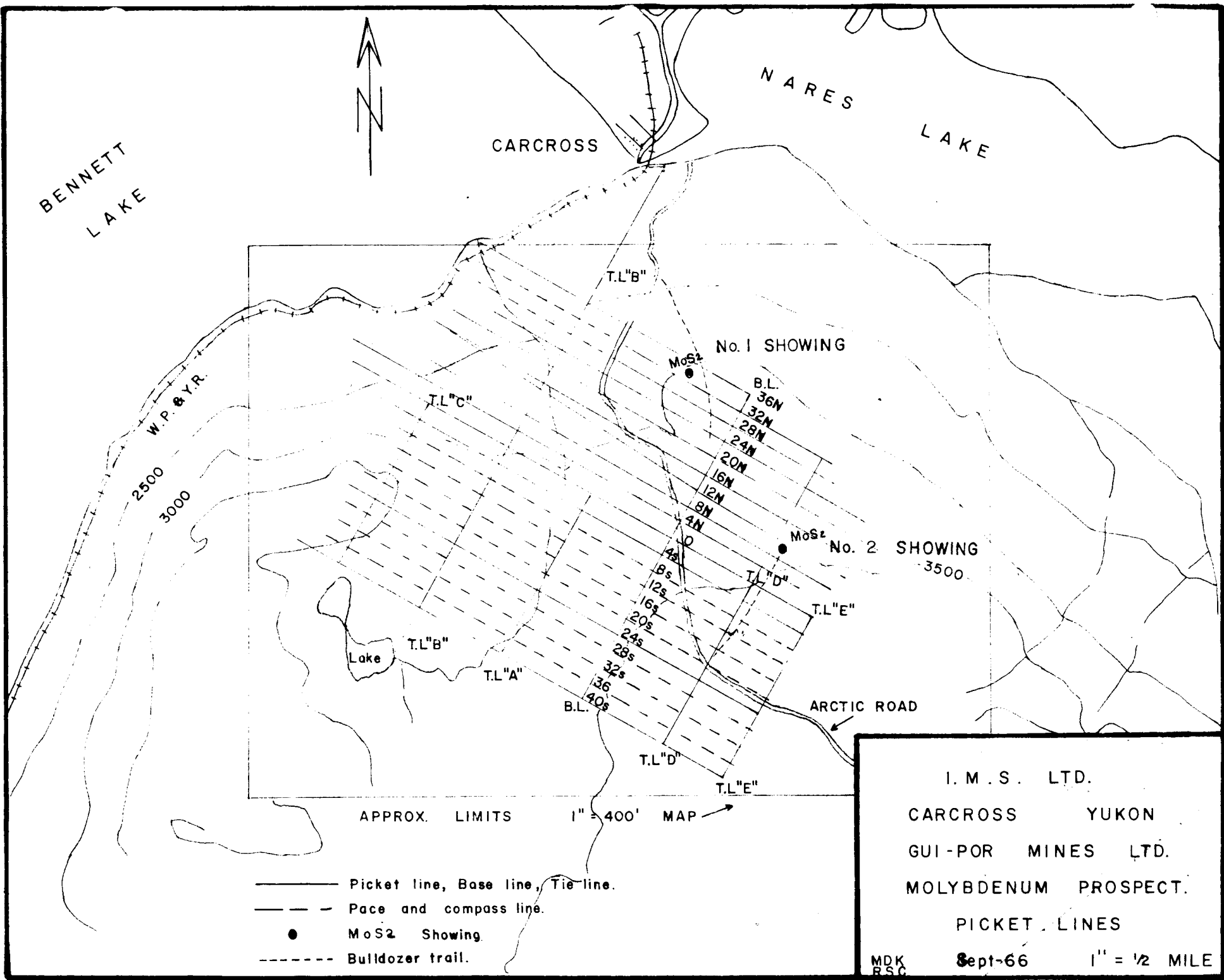


FIGURE 3

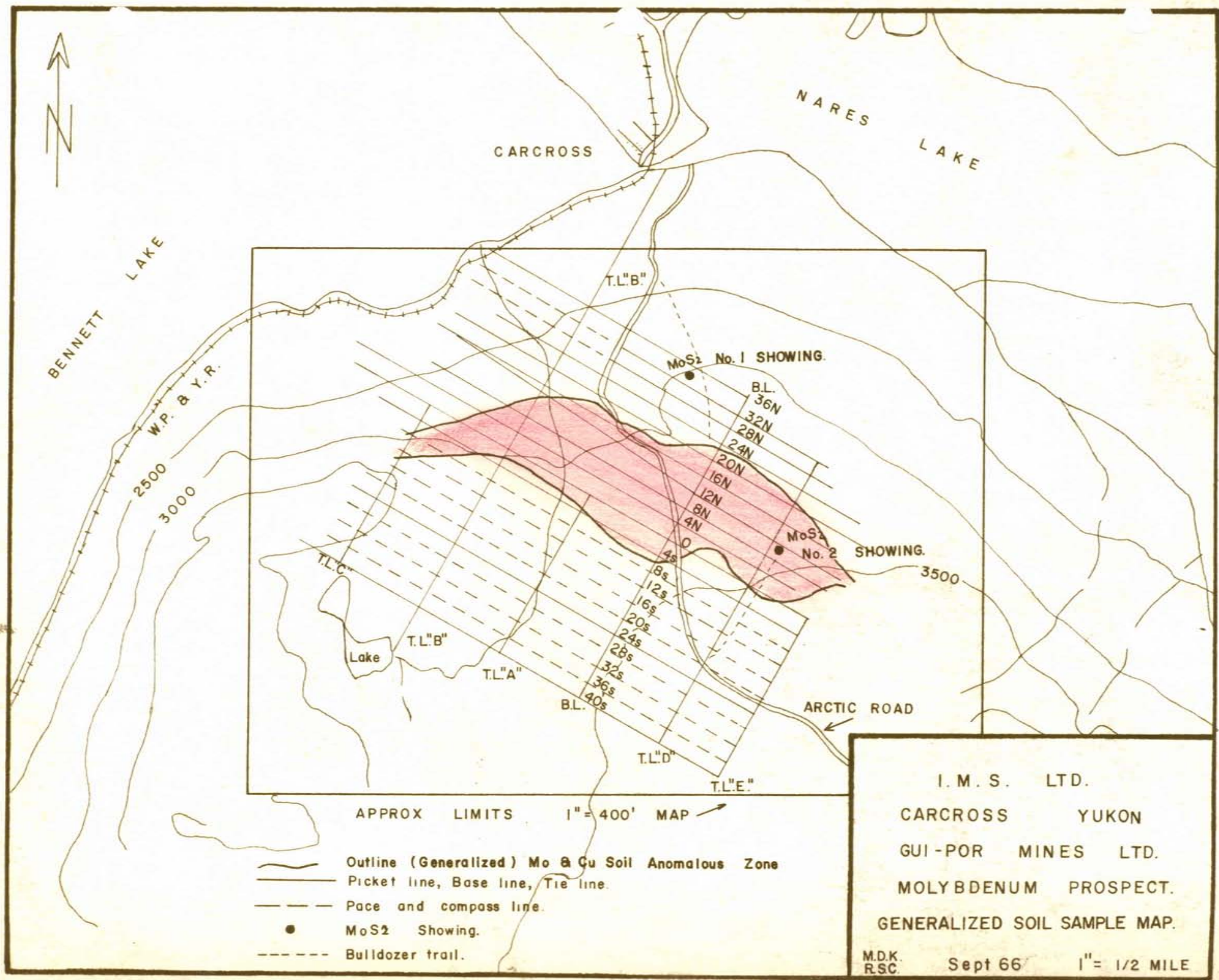


FIGURE 4



BENNETT LAKE

NARES LAKE

LAKE

LEGEND

- — MOLYBDENUM "QUICK" TEST NOT DETECTED
- 10 ● — MOLYBDENUM "QUICK" TEST 5-20 P.P.M.
- 30 ● — MOLYBDENUM "QUICK" TEST PLUS 20 P.P.M.
- 25 — COPPER TEST (NO NUMBER=NO TEST) P.P.M.
- OUTLINE OF MOLYBDENUM DISPERSION "HALO"
- OUTLINE OF COPPER "HALO"
- BULLDOZER TRENCHES 1966

NOTE: CONTOURS ENLARGED FROM 1:50,000 TOPOGRAPHIC MAP

INTERNATIONAL MINE SERVICES LTD.
 GUI-POR URANIUM MINES AND METALS LTD.
BEAR MOLYBDENUM OPTION
 CARCROSS, YUKON.
 SOIL SAMPLING AND TOPOGRAPHIC MAP

OCTOBER 1966 1" = 400' M.D.K. & R.S.C.

FIGURE 5



LEGEND

- CLAIM POSTS LOCATED
- ASSUMED CLAIM POST LOCATION
- CLAIM LINES
- BULLDOZER TRENCH
- SHARP DEPRESSION
- OUTCROP OUTLINE
- MoS₂ MoS₂ SHOWING
- 1 Granite, grey medium grained biotitic in part porphyritic and overburden
- 2 Massive brown quartzite
- 3 Intermediate fine grained Massive Andesite & Dacite
- 4 Rhyolite
- Approximate Contacts.

NOTE: CONTOURS ENLARGED FROM 1:50,000 TOPOGRAPHIC MAP

INTERNATIONAL MINE SERVICES LTD.
 GUI-POR URANIUM MINES AND METALS LTD.
BEAR MOLYBDENUM OPTION
 CARGROSS, YUKON.
 GEOLOGICAL AND CLAIM MAP
 OCTOBER 1966 1" = 400' MDK & BSC

FIGURE 6

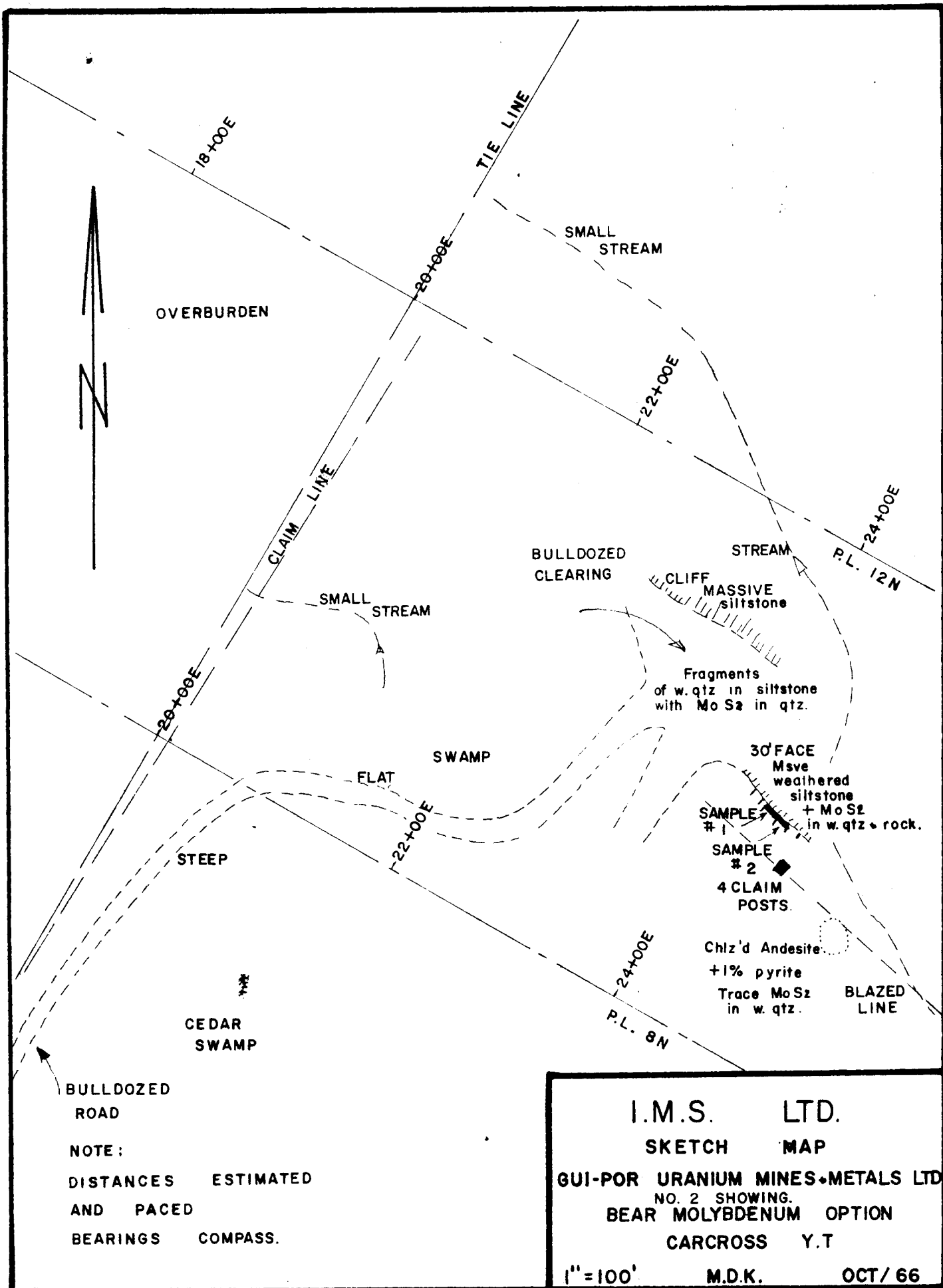


FIGURE 7

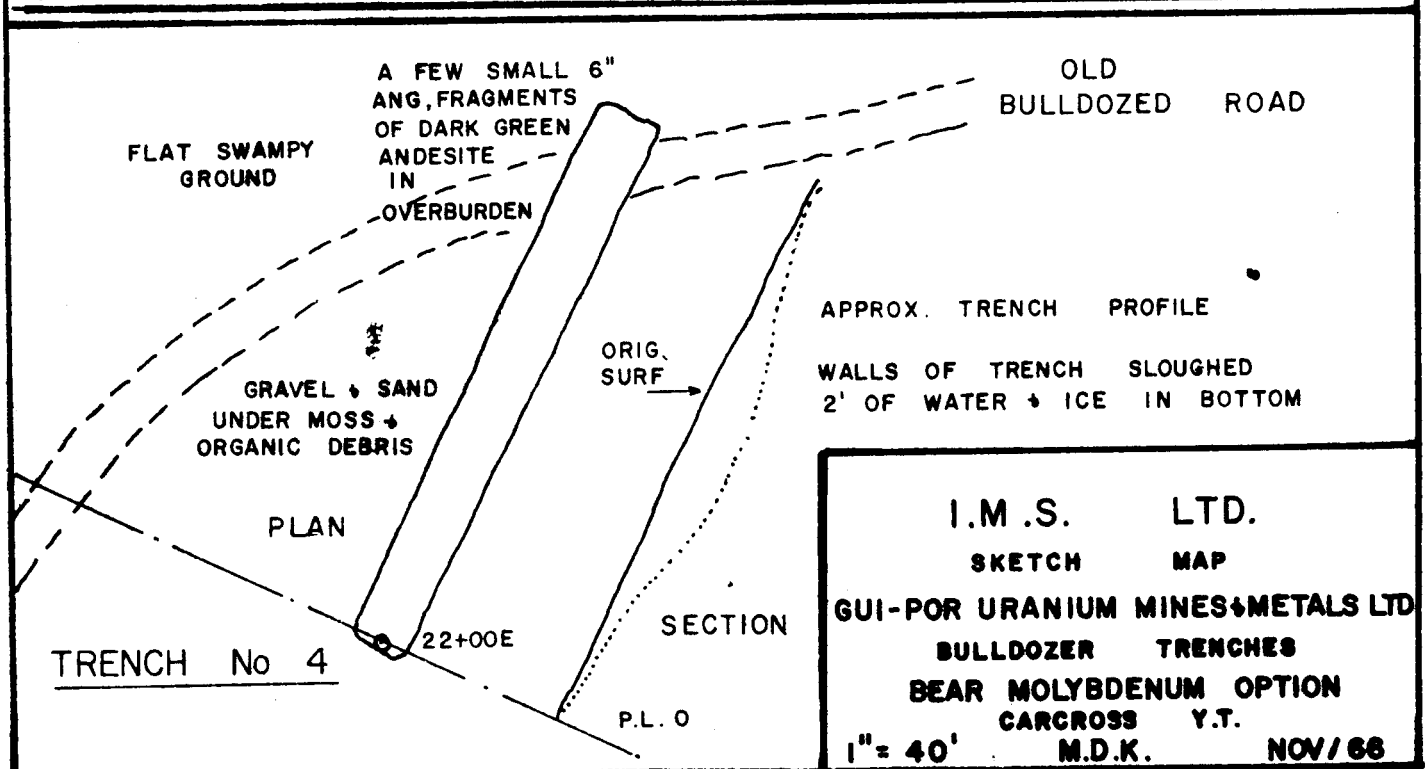
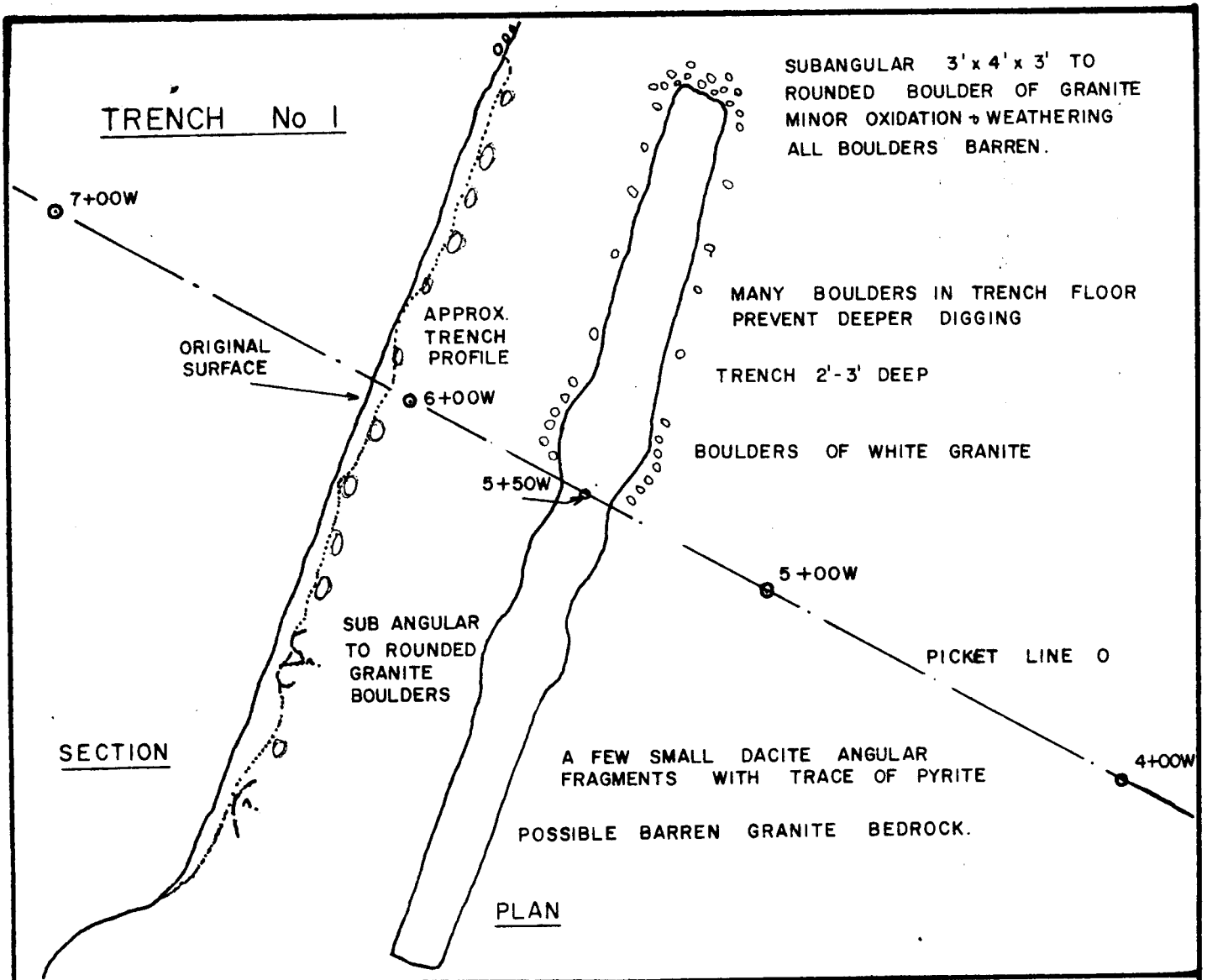


FIGURE 8

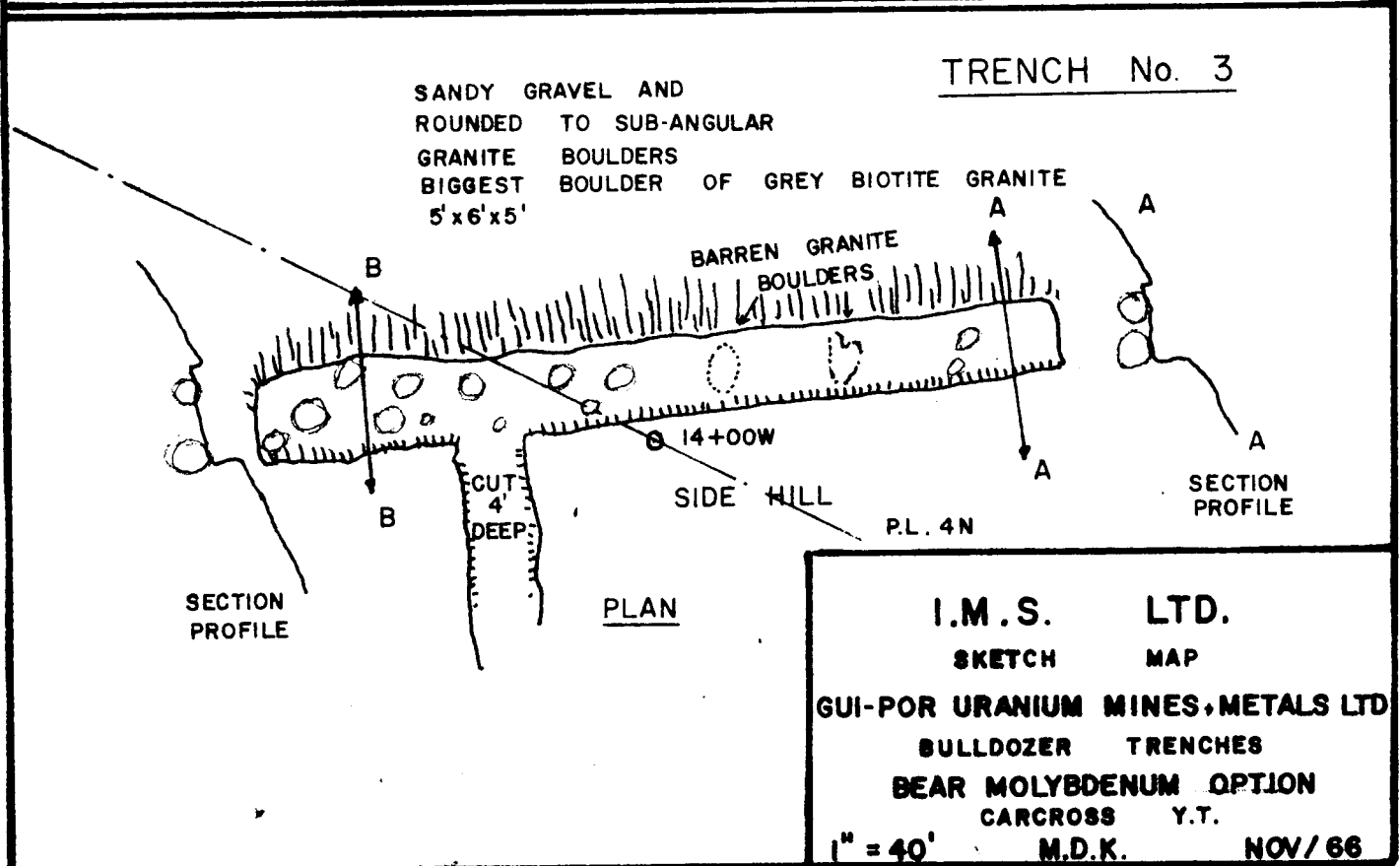
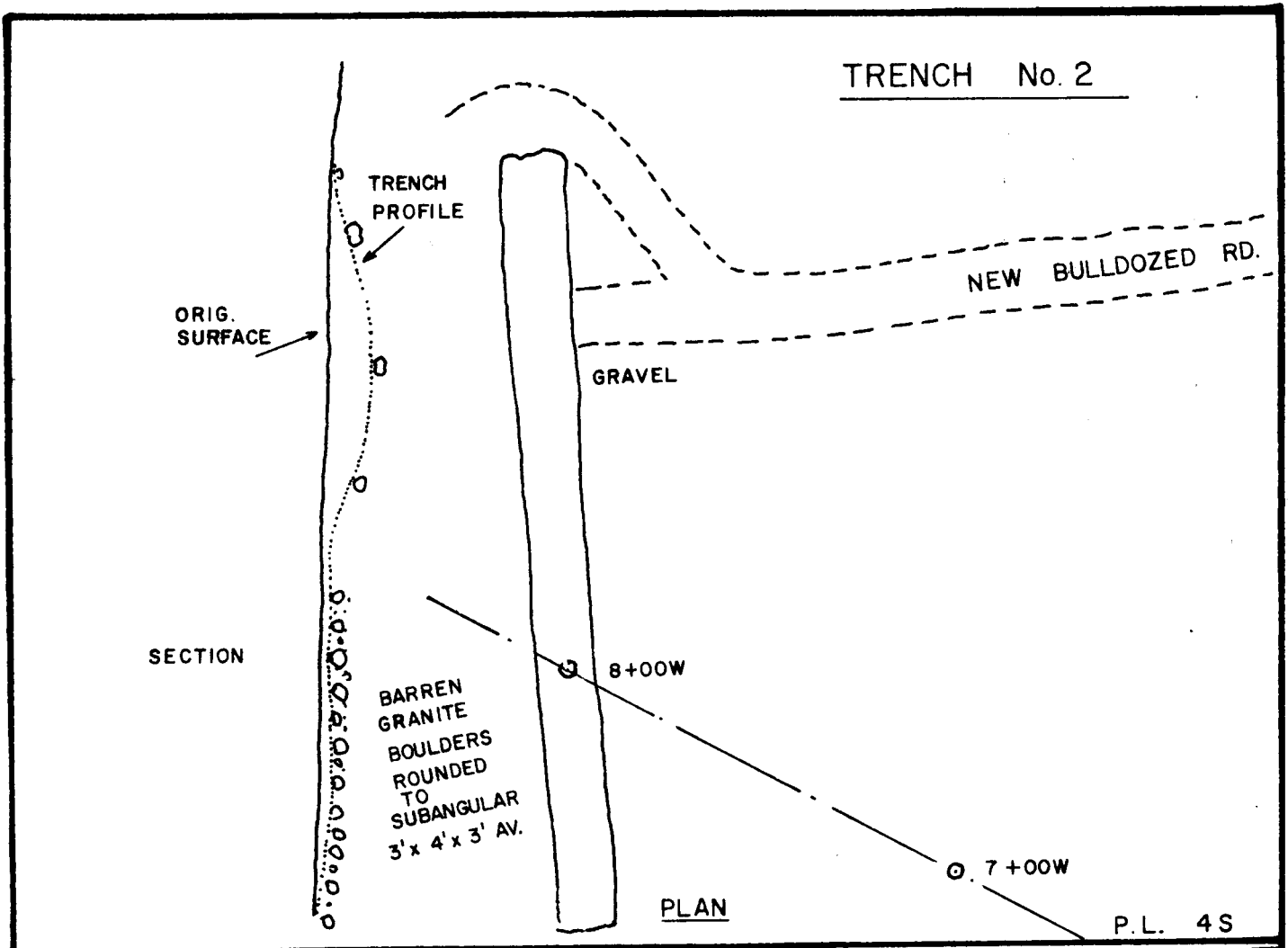


FIGURE 9