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Drill Report by M. Stadnyk

**SILVER ARROW EXPLORATIONS LTD.**  
**REPORT ON 1966 FIELDWORK**  
**ON THE**  
**JO AND ED GROUPS**  
**VANDORDA CREEK AREA, WHITEMORSE M.D., Y.T.**

December 28, 1966

**1. INTRODUCTION**

The Jo Group was examined in early spring 1966 and an airborne electromagnetic survey by the Geo Cal method was chosen as the most appropriate method to determine at an early date whether electrically conductive zones were present on these claims.

Open ground was staked early in the year as the Ed Group, and additional claims, Errol and Little Errol, were located when further surveying showed the presence of additional open ground.

Contrary to expectancies, road access did not materialize during the summer, and helicopter transportation remained a necessity. As a result, the summer program has been kept to a minimum.

Geological mapping and geochemical prospecting of a reconnaissance nature was completed and some linecutting was done in the area of the most attractive conductor on the Ed Group.

Subsequently, electromagnetic ground surveying was carried out over what is believed to be the area of maximum interest, using a Crane instrument.

In this area, pronounced structure, an above average base-metal content of the soil, a significant Sharpe SE 250 conductor and a strong Crane point conductor all point to a possible base-metal occurrence of interest.

On the original Jo Group, additional work is required to explore the schist areas and indicated conducting zones.

On the Ed Group, two programs have been considered, one consisting of more extensive geophysical surveying followed by minor core drilling, and one consisting of core drilling only. The latter program is at present underway.

2. PROPERTY

The property consists of the following claim groups,  
(Fig. 2):

	<u>Grant Nos.</u>	<u>Date Recorded</u>
1. Jo 49 - 62	95336 - 95349	December 7th, 1965
2. Jo 73 - 86	95360 - 95373	December 7th, 1965
3. Ed 1 - 16	Y4975 - Y4990	April 23th, 1966
4. Errol 1 - 2	Y9058 - Y9059	July 5th, 1966
5. Little Errol 1 - 3	Y9062 - Y9064	July 5th, 1966

This is a total of 49 claims. However, there is a significant overlap with adjacent ground on the East, held by Spur Petroleum Ltd. by prior staking, and amongst the westerly row of Jos 49 - 62 (even claim numbers) and the easterly row of Jos 73 - 86 (odd claim numbers) due to insufficient spacing of the location lines.

As the Jos 49 - 62 have been staked on November 18th, 1965 and the Jos 73 - 86 on November 19th, 1965, the former have precedence. However, to locate accurately these claims and to determine which ones may be void due to overlapping, would require a considerable expenditure in surveying. Representation work has therefore been recorded as if all these claims were valid and of full size.

All the Jo claims are registered in the name of J. Howard and all the Ed, Errol and Little Errol claims are registered in the name of Silver Arrow Explorations Ltd.

The group is located at 62°10'N and 132°43'W on claim sheet 103-K-2, East of Swim Lakes and is accessible by a 25 mile winter road starting at the all-weather Blind Creek road about 1½ miles NE of the ferry over the Pelly River. This road lies south of westerly Swim Lake and follows the South shore of Cub Lake, where it turns to the East and South into the upper valley of Moose Creek.

The Pelly River ferry lies approximately 250 road miles from both Watson Lake and from Whitehorse.

The access road to West Swim Lake was not completed until October 1966 and during the 1966 summer field-season, access was only possible by fixed wing and a foot-trail or by helicopter. This has reduced the scope of the 1966 field program and increased its cost.

### 3. HISTORY

The Jo claims were staked South of, and immediately adjoining, the Cub Group of claims of Dynasty, shortly after the latter organization had made a major discovery in this camp in the fall of 1965.

The first discovery in the area had been made by Prospector's Airways on Vangorda Creek in the fall of 1953. Further exploration in the area started in 1962-1963, when Karr Addison Mines acquired ground, followed by Dynasty Explorations in 1964.

There are now well over 30 million tons of about 10% combined zinc-lead-copper ore with 1-2 oz/t silver outlined in about 5 bodies of significant size in the area, which now rates as a major base metal camp.

No work has been carried out before 1966 on the ground now covered by Silver Arrow Explorations Ltd.'s Jo claims except some reconnaissance prospecting and possibly minor airborne magnetic work by the Dynasty organization in 1964-1965.

### 4. REGIONAL GEOLOGY

Only 1" = 4 mile regional reconnaissance mapping by the G.S.C. is available, mostly obtained by mapping by helicopter.

The Vangorda Creek area is underlain by a NW trending anticline of quartz-sericite schists with varying amounts of chloritic schists, limy schists, graphitic schists and occasional hornfelses, generally referred to by the G.S.C. as Unit 7.

These formations are believed to be of Mississippian age, and are overlain by a series of andesitic volcanics associated with minor argillites and quartzites (G.S.C. Unit 8) which, in turn, are covered by a series of argillaceous quartzites and conglomerates (G.S.C. Unit 9). Of the latter, only a few remnants remain in the area.

The older Devonian, comprising cherts, quartzites and limestones, appears to the Northeast, as shown by the attached 1" = 4 mile map.

Intrusives of varying composition and age occur in the district; a granodioritic character predominates, and their age, based on isotope dating, is believed to lie in the Cretaceous to Tertiary range.

Tertiary basic flows occur both to the NE and the SW of the general district, but none are exposed on the map area covered by the attached location map.

Strong faulting took place in the Cretaceous and Tertiary with good evidence of a total right-lateral movement of about 250 miles along the Tintina Trench (G.S.C. Paper 65-2, p. 57).

Significant NE trending faults are indicated across the NW striking anticlinal belt.

The presently known sulphide bodies, essentially pyritic-pyrrhotite bodies carrying significant base-metal values in something like 50% of their mass, occur in the schists and are generally conformable to the bedding.

Personal observations of various occurrences east of the Tintina Trench have indicated to the writer that recumbent folding and imbricated structures are present and may be important factors in determining the shape of the above-mentioned sulphide masses.

These considerations on age of the formations, on type of ore and on the tectonic style suggest considerable remobilization of sulphides, regardless of their first mode of deposition.

Field evidence also suggests that skarnified contacts of intrusives, breccia zones (possible breccia pipes), shears, shear-zone intersections and possibly other geological features could be significant controls of cross-cutting ore deposits of either the high grade bonanza type or of the large low-grade type in this area.

#### 5. AIRBORNE ELECTROMAGNETIC SURVEY

The Geo Cal method is based on the observation that a helicopter equipped with metal rotor blades generates a primary electromagnetic field of approximately 100 c.p.s. with an effective radius of some 150' when the blades are rotating at their normal speed of 320 R.P.M.

When a helicopter with metal blades flies at an elevation of 50' to 100' above a conducting body of some size, a secondary electromagnetic field is induced, and the resultant field shows a significant distortion.

This resultant field can be analyzed with a search coil with a vertical axis held by the operator in the helicopter.

The audio amplifier attached to the search coil is tuned to a signal of 100 c.p.s. and has a gain switch and a feed back squelcher switch.

The former is regulated to produce a barely audible signal when the coil is held with its axis vertical, and the latter is adjusted so that only the 100 c.p.s. signal goes through the amplifier. When the aircraft flies close to the terrain in the absence of a conducting zone, the field signal will have minimum amplitude. If, under these conditions, a conducting zone is traversed, the signal strength will markedly increase in amplitude. Under favourable conditions, the orientation of the resultant field can be analyzed by having the helicopter hover over the conducting zone.

By landing, the conducting zone so discovered can be traversed on the ground with the same receiver coil, using a power-pack transmitter.

The survey was flown over the Silver Arrow ground along East-West lines some 100' to 200' apart, using an enlarged airphoto-graph to spot the conducting zones, after location lines had been cut by bulldozer to identify the claims on the ground.

The results of this survey are plotted on figure 4.

Fourteen conducting zones were located, some of which are part of one and the same zone.

One of these zones was located on the ground by landing the helicopter and using the Sharpe instrument on the ground. This conductor was found to produce dip angles of 15°. The other conductors were not accessible by helicopter.

Subsequent ground investigation consisted of geological mapping and reconnaissance soil sampling in the general areas of the conductors.

## 6. GEOLOGICAL WORK

Reconnaissance mapping and geochemical sampling was carried out in late July and early August by R. Peltola and geologist, Dr. A.F. Koester van Groos, and a small grid cut over the Sharps conductor.

As shown on figure 3, several schist areas were located in contact with areas of granodiorite. Although overburden and a certain amount of permafrost precluded enough detailed work, it is thought that on the Western part of the group, on the Ed claims, the granodiorite occurs in the form of sill-like bodies interbedded with at least two bodies of schists.

On the Jo Group of claims geological mapping revealed only scattered small outcrops of granite but extensive areas of schist in the float suggest that the possibility of favourable areas for further exploration extend into this area.

The schists strike almost due North with a Westerly dip of about 20°. Some steeper dips suggest local folding.

About one mile to the Southwest, the strike is about ENE, i.e. parallel to the boundary of the adjoining Sulzac Group; observed dips are some 5° - 10° North. Observed contacts suggest that the schists underlie the granite, more particularly in the area of the conducting zone on Ed 13 and 15 claims.

Insufficient geological data are available to extrapolate the sulphide-bearing horizon (or horizons ?) in an Easterly direction from the known bodies between Faro Creek and Swim Lake.

The regional strikes and the presence of significant amounts of sulphides on the Sea Group suggest strongly, however, that the sulphide-bearing zones within the favourable Unit 7 may be present in or near Upper Moose Creek, in the general vicinity of the Ed and Jo claims.

The presence of significant areas of favourable schists on the Ed and Jo claims, about on strike with the sulphide-bearing belt, is therefore considered promising.

## 7. GEOCHEMICAL RECONNAISSANCE

Soil Sampling, although hampered somewhat by the presence of permafrost, was carried out along suitable lines across the schist areas. A total of 62 soil samples were taken, 20 on the Ed claims and 42 on the Jo claims.

The lead background was relatively high for the area, with the majority of samples lying in the 14 - 24 ppm area; a more normal background is usually 1 - 20.

The zinc background was relatively low with the majority of samples lying in the 16 - 52 ppm range, whereas a more normal range is about 30 - 75 ppm.

The lead high is 32 ppm, the zinc high is 104 ppm.

These are not very high values, but on the Ed claims the maxima form a small cluster on strike with the conducting zone (figures 4 and 5). All sample locations were checked first with a trail kit in the field and the higher laboratory values confirmed the initial field test highs.

In general, the result of the geochemical reconnaissance are not incompatible with the presence of a buried base-metal carrying zone without any outcrop in the area.

## 8. GROUND GEOPHYSICS

The only instrument available to carry out a ground electromagnetic survey to tie the previously observed conductor to the small grid cut in the area was a Crone instrument. The instrument supplied did not function on the high frequency setting which would have provided greater depth penetration and comparative readings over any conductors located.

On one line a strong negative anomaly was located and checked by repeated readings.

This type of anomaly usually results from a low angle conducting zone, as shown on figure 6.

As this zone could only be located on one line, its lateral extent at the depth below this line is not large. It overlies an area of granodiorite which is believed to form a sheet in this area.

The lack of correlation between the Crone and Sharpe indicated conductors may be attributed in part to the variation in depth sensitivity. The fact that both appear over the same formational unit does point to a common conductor occurring under varying depths of cover. This interpretation is, however, somewhat conjectural as the relative position of the two anomalies has not been determined with sufficient accuracy to indicate their precise relationship.

Some 400' to 500' to the NW and not quite on strike with the formations, there is a small cluster of geochemical highs in lead and zinc, located on a low hill and therefore not due to swamp conditions. This suggests a possible common source at a depth of perhaps 100' to 200' for the conductor and the geochemical high.

This situation would require more linecutting and the use of a deep penetration EM instrument for a more complete analysis.

It is noteworthy that no graphitic schists were found in the area of the conductor and that a localized conductor is not likely related to schists of this type, which usually form fairly extensive and elongated zones, reflected by conductors of a similar shape.

## 9. PERSONNEL AND COSTS

A list of personnel engaged in work on the Jo, Ed, Errol, and Little Errol claims is attached to this report as appendix A.

A cost breakdown is attached as appendix B.

Costs as distributed to the various claim groups are as follows:

	<u>Jo</u>	<u>Ed</u>	<u>Errol</u>
1. Staking	\$ -	\$ 435.00	\$ 200.00
2. Linecutting for airborne survey	2,148.78	-	-
3. Airborne survey	1,772.25	-	-
4. Linecutting, expenses	charged to Errol staking		
5. Geology	907.09	707.09	200.00
6. Soil Sampling	410.01	410.01	-
7. Wages R. Heltola re 4, 5 & 6	300.00	1,050.00	300.00
8. Assaying	80.00	43.83	-
9. Ground EM survey on Ed	-	388.28	-
Total	<u>\$5,618.13</u>	<u>\$3,234.21</u>	<u>\$ 700.00</u>

This is a total of \$9,552.34. Of this sum, headings 1 to 6 and 9 were personally disbursed by the writer on behalf of Silver Arrow

Explorations Ltd., while the Company paid Nos. 7 and 8 directly. All but \$635.00 spent on staking the Ed and Errol claims is usable for representation work. A total of \$4,200.00 has been applied to the 28 Jo claims on December 16th, 1966, which keeps these claims in good standing for 18 months, i.e. until June 7th, 1968. It is planned to bring all claims up to this common date in due course.

#### 10. SUMMARY

The above described set of features in a small area may well be due to the presence of a lead-zinc bearing zone lying at a depth of over 100' with a small portion lying within range of the Crons and a larger portion within the somewhat deeper range of the Sharpe instrument.

No one of the four favourable factors, namely, structure, geochemistry, Crons EM or Sharpe EM, would alone be indicative of the presence of a mineralized zone.

The combination of the four in a small area, especially when taking into account some of the uncertainties regarding accurate relative location, points however to a worthwhile exploration target.

One approach to further investigation is the following. Cut about 10 miles of line suitable for a Turam lay-out, which is a deep penetration EM, or for an IP survey, Map in detail. Follow up with a magnetic survey and a gravity survey. Strip with a bulldozer and do detailed soil sampling where indicated. Drill two 300' - 400' core-holes to test the spots where all or most favourable indications converge.

In view of the difficulty to obtain the necessary crews and instruments, an alternative approach is to make provision to drill three 300' - 400' holes in locations selected on the basis of the data now available.

On the basis of a \$25.00 per foot overall drill cost, the difference in drilling is one 400' hole, i.e. theoretically \$10,000.

A program of 10 miles of line-cutting, Turam or IP surveying, geological mapping, and magnetic and gravity surveying is about as follows:

10 miles line-cutting	\$ 1,500
IP surveying, 10 line miles	3,500
Geological mapping	1,500
Gravity	2,500
Magnetic survey	1,000
Mobilization of the various crews	<u>2,000</u>
	<u>\$12,000</u>

These figures are based on recent experience in the field and are conservative. This program is expected to lead to a well defined drill target requiring two holes for an adequate test.

If drilling were undertaken without this preliminary program three holes will be required to test the anomalous conditions encountered.

In addition, spreading mobilization over 1200' of drilling versus 800' will lower the unit cost by an estimated \$3.00 per foot.

11. RECOMMENDATIONS

1. Ed Group

The writer recommends for serious consideration, taking into account the time of the year, the availability of equipment and the transportation problem, and the odds of success, the following alternative programs for the Ed Group:

A. Preliminary exploration as outlined under 10:	\$12,000
800' of drilling @ \$29.00	<u>20,000</u>
	32,000
20% contingency	<u>6,000</u>
	<u>\$38,000</u>
B. 1200' of drilling @ \$22.00	\$26,400
20% contingency	<u>5,600</u>
	<u>\$32,000</u>

In this particular location, a preliminary program as under "A" cannot be satisfactorily completed before the end of March 1967.

Drilling as under "B" can be started now or in February 1967 and should be completed before break-up of the available winter roads in April 1967.

Program "A" has higher odds of success at a higher cost, but drilling may have to be undertaken in summer and would require either helicopter service or a summer road suitable for four-wheel drive.

For these reasons, the writer favours program "B".

## 2. Jo Group

An appropriation should be reserved for further exploration of the Jo claims, which is best undertaken by cutting G-W lines approximately along the claim lines and, in the anticipated schist areas, halfway between them.

This will provide a grid with lines some 600' apart, suitable for geological mapping and additional soil sampling.

Total cost is estimated at \$8,000.

Program "B" and additional exploration of the Jo claims will require \$40,000 including contingencies.

In case of success, a continuing drill program should be provided for.

At the time of writing, drilling on the Ed Group had started as of December 19th, 1966.

Respectfully submitted,

F.H. SEVENOMA CONSULTANTS LTD.



F.H. Sevenoma, Ph.D., P. Eng.

FHS/ls

December 28, 1966

CERTIFICATE

I, PETER H. SEVENSMA, of Vancouver, B.C., do hereby  
certify that:

1. I am a graduate of the University of Geneva, Switzerland (Physics and Chemistry, 1937; Geology and Mineralogy, 1937) where I obtained my Ph.D. in Geological and Mineralogical Sciences in 1941.
2. I am a Consulting Geological Engineer and a registered member in good standing of the Association of Professional Engineers of British Columbia and of the Association of Professional Engineers of Yukon Territory.
3. From February 1948 until December 1965 I have been engaged continuously in mining and exploration geology in the employ of Cominco Limited. As a Senior Exploration Geologist, I have worked extensively both in Eastern and Western Canada.
4. I have personally examined on several occasions the claims which are the subject of this report and have acted as a Consulting Geologist since early 1966 on the exploration program conducted by Silver Arrow Explorations Ltd. on these claims.
5. I have not received, nor do I expect to receive or acquire, directly or indirectly, any interest in any of the properties or securities of Silver Arrow Explorations Ltd.

Respectfully submitted,



P. H. Sevensma, Ph.D., P. Eng.

APPENDIX A

LIST OF FIRMS AND INDIVIDUALS ENGAGED IN WORK PROGRAMS  
ON JO & ED GROUPS FOR SILVER ARROW EXPLORATIONS LTD.

Road Construction & Stripping:  
March 27 - April 1, 1966

Liard Construction, Whitehorse, Y.T.  
Supervised by M. Cloutier, Richmond, B.C.

Airborne EM Consultants:  
April 1 - 3, 1966

Geo Cal Ltd., West Vancouver, B.C.  
C.B. Selmsor, P. Eng., Geophysicist  
I. Poyntz, Operator

Geophysical Helicopter:

Bell 4703 B-1 CF-USA  
Elliott, P. Langlois

Surveying, Tape & Compass:  
March 26 - April 9, 1966

F.H. Sevensma Consultants Ltd.  
M. Cloutier, Richmond, B.C.  
G. Harris, Whitehorse, Y.T.  
Joe Dick, Ross River, Y.T.

Linecutting & Geochemical Work:  
June 22 - July 31, 1966

R. Peltola, J. Scales - Soil Samples  
Assaying by T.S.L. Laboratories Ltd.,  
Vancouver, B.C.

Geological Survey:  
July 22 - 31, 1966

F.H. Sevensma Consultants Ltd.  
Dr. A.F. Koster van Groos, Field Geologist

Ground Geophysics:  
October 6 - 9, 1966

F.H. Sevensma Consultants Ltd.  
H.S. Aikins, Field Operator  
D. McCallum, Helper  
Instrument: Crons Dual Frequency



APPENDIX B

SILVER ARROW EXPLORATIONS LTD.  
COST BREAKDOWN FOR ASSESSMENT WORK

<u>Type of Work</u>	<u>Chassis #</u>	<u>Paid to</u>	<u>Amount</u>	
<u>I. Jo M.C.'s 49 - 62 and 73 - 86</u>				
<u>1. Linecutting</u>				
Supplies, truck	1	Ross River Enterprises	\$ 60.00	
Wages	2 & 3	J. Dick & J. Atkins	32.00	
Stripping by bulldozer	5	G. Stephen (Liard Constr.)	910.00	
Transportation	6	Great Northern Airways	15.50	
Stripping, surveying	10(part)	F.H. Sevensma Cons.	598.28	
Consulting fees	11	F.H. Sevensma Cons.	450.00	
Wages	12	G. Harris	50.00	
Bank charges	DM	Bank of Montreal	2.00	
Transportation	17(part)	Great Northern Airways	<u>31.00</u>	\$2,148.78
<u>II. Ed M.C.'s 1 - 16</u>				
<u>2. Staking</u>				
Transfer	4	I. Poyntz	25.00	
Recording	8	Receiver General	160.00	
Field time	10(part)	F.H. Sevensma	200.00	
Transfers	15	Receiver General	19.00	
Field Transportation	17(part)	Great Northern Airways	<u>31.00</u>	\$ 435.00
<u>3. E.M. Survey</u>				
Instrument rental (Croos)	39	Exploration Geophysics	52.50	
Wages and expenses	40	F.H. Sevensma Cons.	<u>535.78</u>	\$ 588.28
<u>III. Jo &amp; Ed M.C.'s</u>				
<u>4. Airborne Survey</u>				
Geophysical helicopter	7	Klondike Helicopters	1,062.00	
Helicopter support	7	Klondike Helicopters	170.00	
Geophysical contractor	9	Geo Cal, West Vancouver	<u>540.25</u>	\$1,772.25
<u>5. Linecutting</u>				
Expenses	21	R. Peltola	100.00	
Expenses	24	R. Peltola	<u>100.00</u>	\$ 200.00
<u>6. Geology</u>				
Transportation	25	Great Northern Airways	369.00	
Expenses	31	Koster van Groos	45.49	
Koster van Groos	37(part)	Selwyn Syndicate	300.00	
Jeep rental	38	F.H. Sevensma Cons.	99.00	
Consultants fees, expenses	38	F.H. Sevensma Cons.	653.68	
Transportation	41	Great Northern Airways	79.00	
Wages (Koster van Groos)	22	Selwyn Syndicate	120.00	
Camp move	23	Klondike Helicopters	<u>148.00</u>	\$1,814.17
<u>7. Soil Sampling</u>				
Groceries	26	Taylor & Drury	96.71	
Groceries	32	Taylor & Drury	195.82	
Transportation	33	Great Northern Airways	70.00	
Supplies	34	F.H. Sevensma Cons.	20.75	
Transportation	36(part)	Klondike Helicopters	432.00	
Bank charge	DM	Bank of Montreal	<u>4.73</u>	\$ 820.03
<u>IV. Paid directly by Silver Arrow Explorations Ltd.</u>				
Engineering fee, R. Peltola & J. Scales, June - July, 1966			1,650.00	
T.S.L., Assaying			<u>123.83</u>	
<b>TOTAL EXPENDITURE</b>				<b>\$9,552.34</b>

*J.H. Sevensma*

APPENDIX C

SILVER ARROW EXPLORATIONS LTD.

SUMMARY COST STATEMENT

Total Exploration Costs incurred by Silver Arrow Explorations Ltd.  
on the Jo, Ed and Errol claims.

<u>To December 16, 1966</u>	<u>Applied Previously</u>	<u>Not yet used</u>
Linecutting	\$ 2,148.78	\$ -
Airborne survey	1,772.25	-
Geology, Soil Sampling	<u>317.10</u>	2,317.10
Sub Total (42 claim years)	4,238.13	
Wages, Fuel, Scales		1,650.00
T.S.L., assaying		<u>123.83</u>
Balance to apply to Ed and Errol		\$ 4,090.93

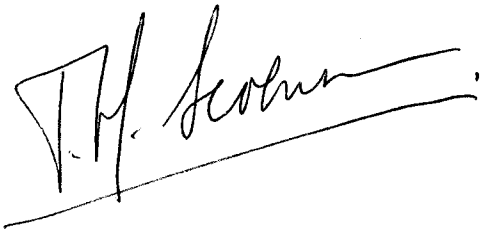
Between December 16, 1966  
and February 14, 1967

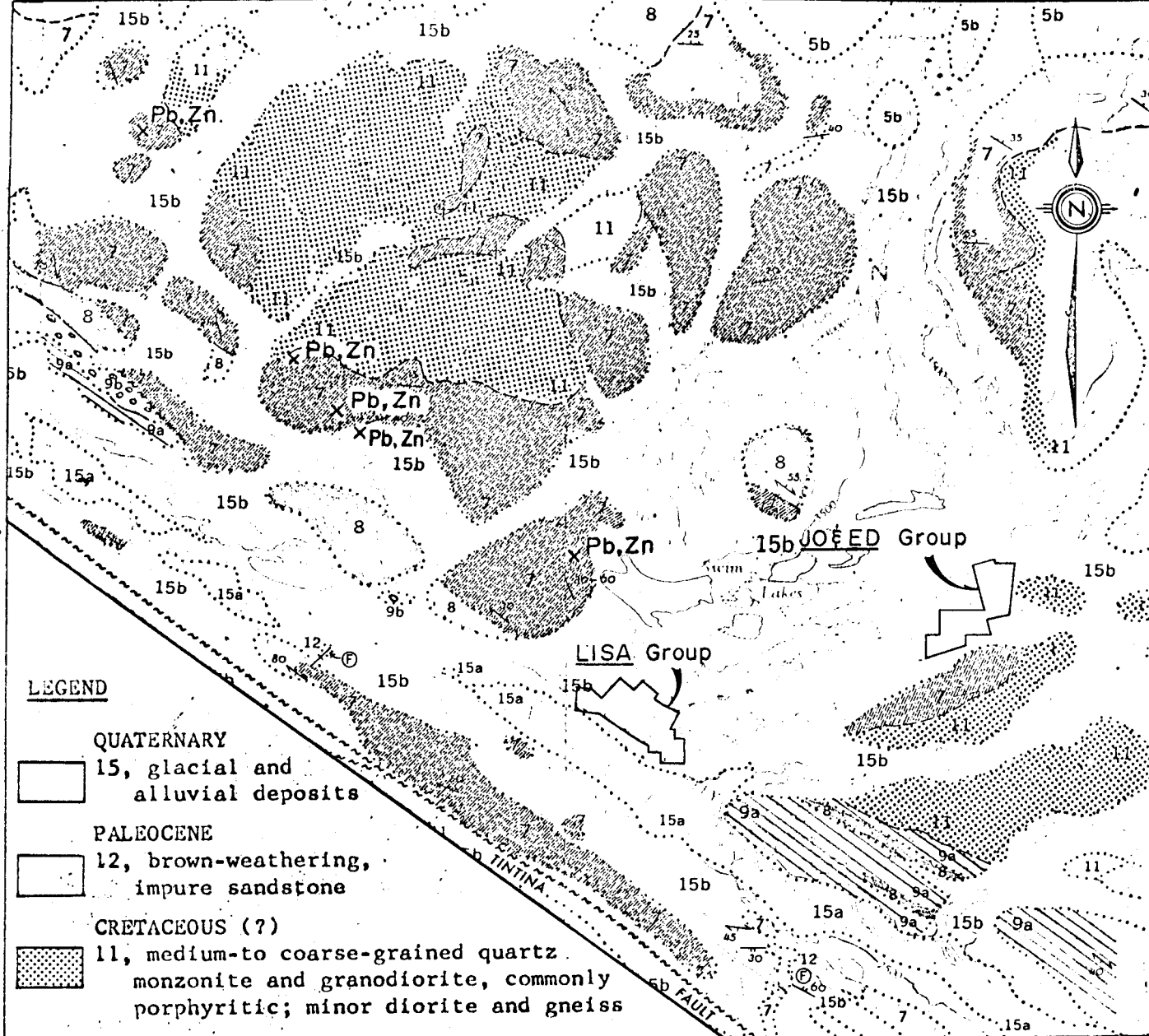
1424' of AX drilling @ \$9.00	12,816.00
228' of AX & BX casing, @ \$1.00	228.00
6.3 miles of good tote road @ \$400 (note: total bulldozer costs \$5,419.00)	<u>2,600.00</u>

Total available for representation work as of April 25, 1967 \$19,734.93

This represents 197 claim years.

Certified Correct:





**LEGEND**

- QUATERNARY**
- 15, glacial and alluvial deposits
- PALEOCENE**
- 12, brown-weathering, impure sandstone
- CRETACEOUS (?)**
- 11, medium-to coarse-grained quartz monzonite and granodiorite, commonly porphyritic; minor diorite and gneiss
- MISSISSIPPIAN (?)**
- 9, 9a greenish grey quartzite, commonly thin-bedded; micaceous and silvery graphitic schists; and silty limestone
- 9b conglomerate
- 8, altered, dark green andesite and basalt flows and tuffs, minor sediments
- 7, banded quartzose granulite, green and purplish banded skarn, quartz-sericite schist, hornfels and phyllite; chlorite schist and thin altered andesite.
- DEVONIAN/MISSISSIPPIAN**
- 5, 5a chert-pebble conglomerate
- 5b chert, shale, quartzite; minor conglomerate and limestone
- 5c slate, shales, sandstone, greywacke, phyllite; minor conglomerate

<b>SILVER ARROW EXPLORATIONS LTD.</b>		
PROPERTY LOCATION AND REGIONAL GEOLOGY Whitehorse M.D. 105 K-2		
P. H. SEVENSMA CONSULTANTS LTD. 715 - 850 WEST HASTINGS VANCOUVER, B.C.		
REF.: N.T.S. 105 K-2	DATE: December 1966	SCALE: 0 2 4

**FIG. 1**

ANVIL MNG. (Cub Grp.)

(Luv Grp.)

ANVIL MNG.  
(Sea Grp.)

Tie in to Sea  
No. 2 posts

ERROL 1

ERROL 2

Little Error  
(fraction)

SULMAC (Sock Grp.)

SILVER ARROW

EXPLORATIONS LTD.

GOLDEN GATE

SILVER ARROW EXPLORATIONS LTD.

CLAIM MAP

Whitehorse M.D.

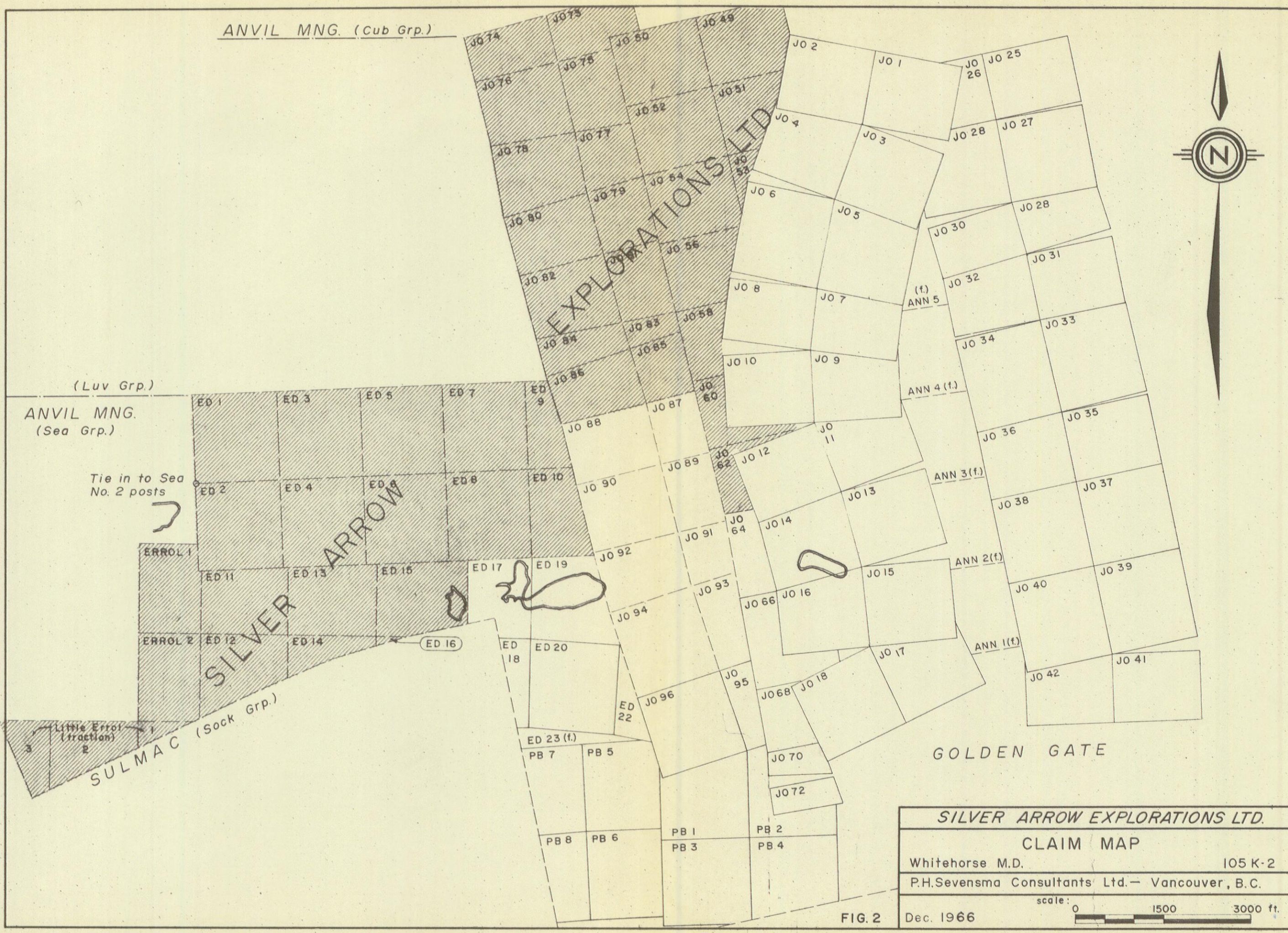
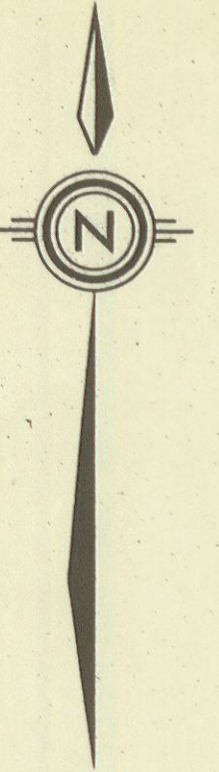
105 K-2

P.H. Sevensma Consultants Ltd. - Vancouver, B.C.

Dec. 1966

scale: 0 1500 3000 ft.

FIG. 2



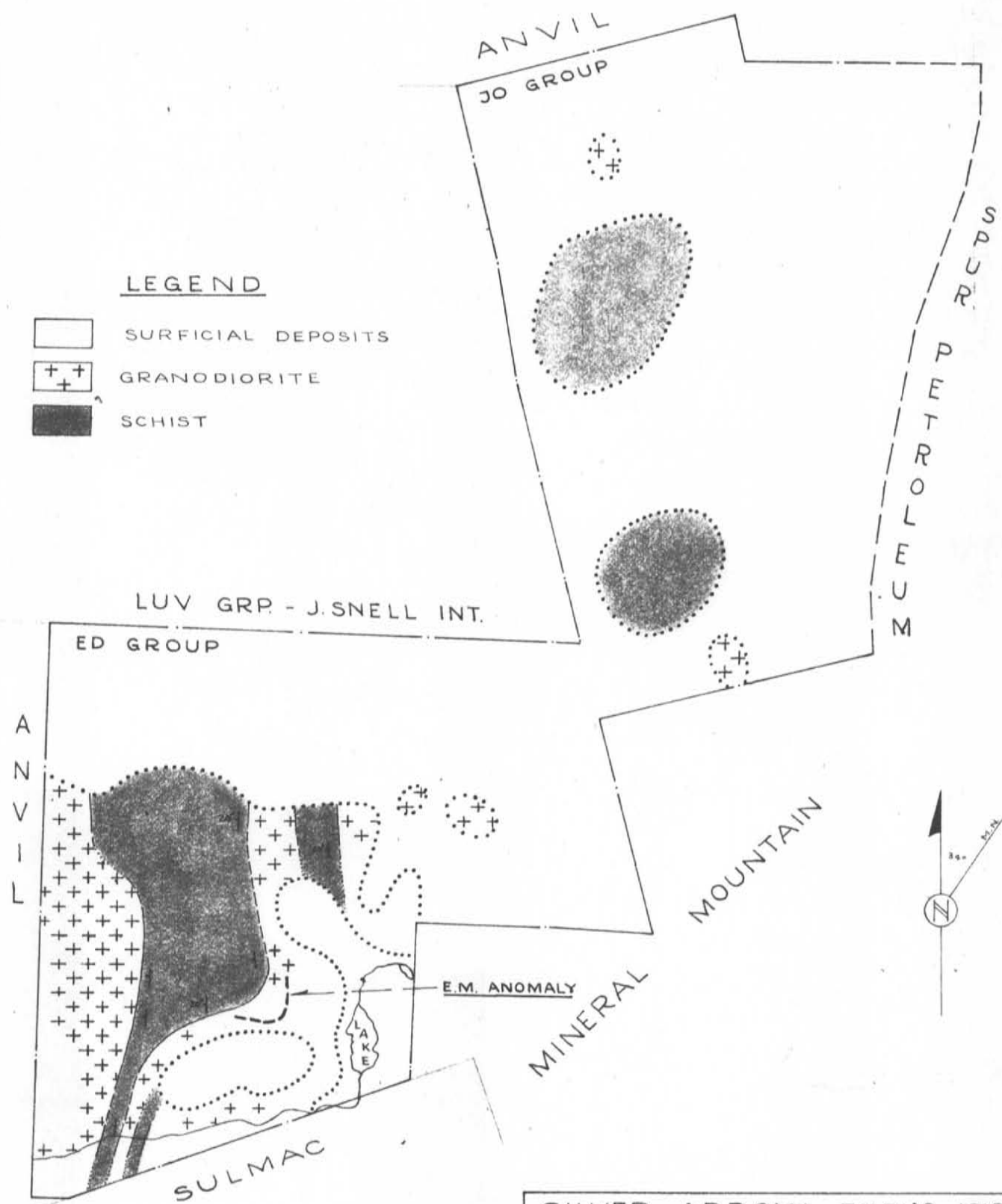


FIG. 3 GEOLOGY

SILVER ARROW EXPL'S LTD.	
JO & ED CLAIMS	105-K-2
RESULTS OF 1966 FIELD WORK	
PETER H. SEVENSMA - CONSULTANT	
VANCOUVER B.C.	0 500' 1000' 1500'
OCTOBER 1966	

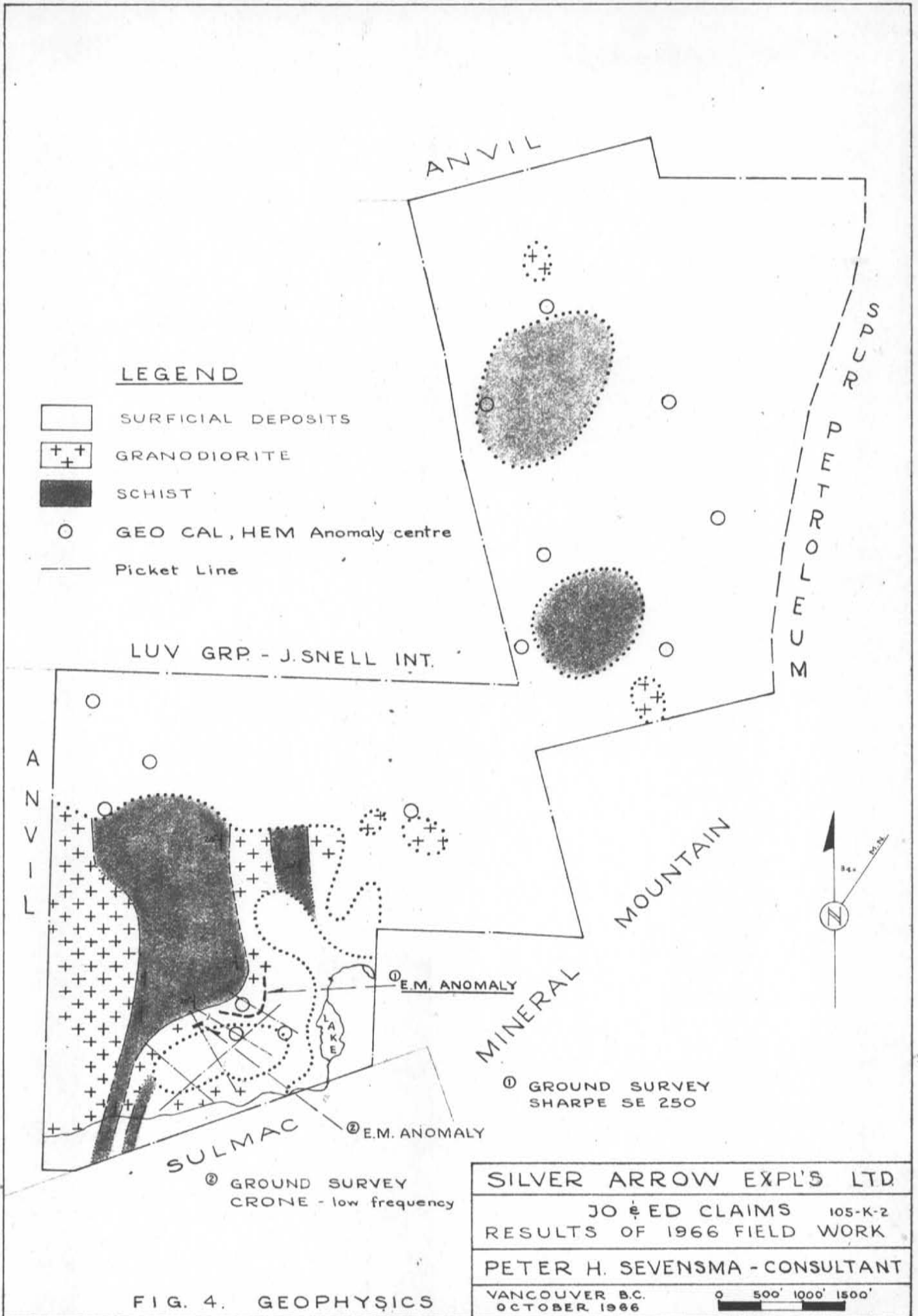





FIG. 4. GEOPHYSICS

ANVIL

PETROLEUM RUCPS

LEGEND

-  SURFICIAL DEPOSITS
-  GRANODIORITE
-  SCHIST
- SOIL SAMPLE - Background value
- ⊙ " " - High Lead
- X " " - High Zinc

LUV GRP - J. SNELL INT.

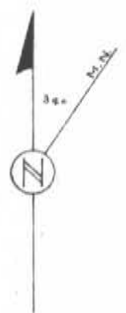
ANVIL

MINERAL MOUNTAIN

E.M. ANOMALY

SULMAC

LAKE



SILVER ARROW EXPL'S LTD

JO & ED CLAIMS 105-K-2  
RESULTS OF 1966 FIELD WORK

PETER H. SEVENSMA - CONSULTANT

VANCOUVER B.C. OCTOBER 1966

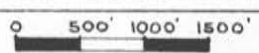


FIG. 5 GEOCHEMISTRY

CRONE EM SURVEY  
PROFILE ON LINE +800 NW

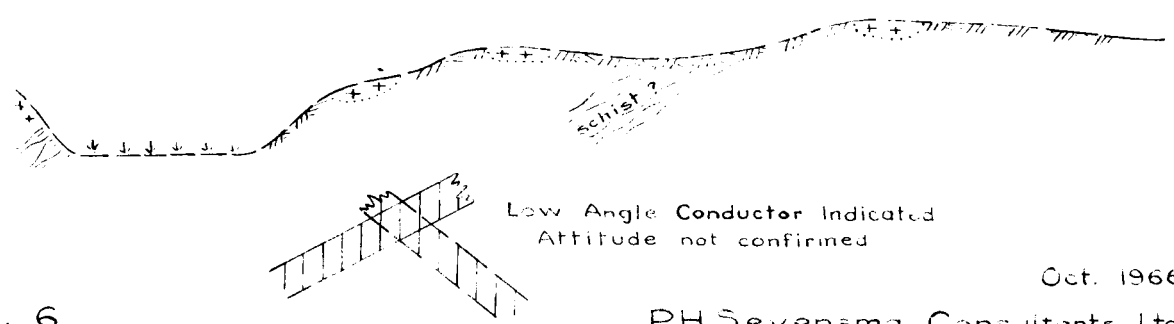
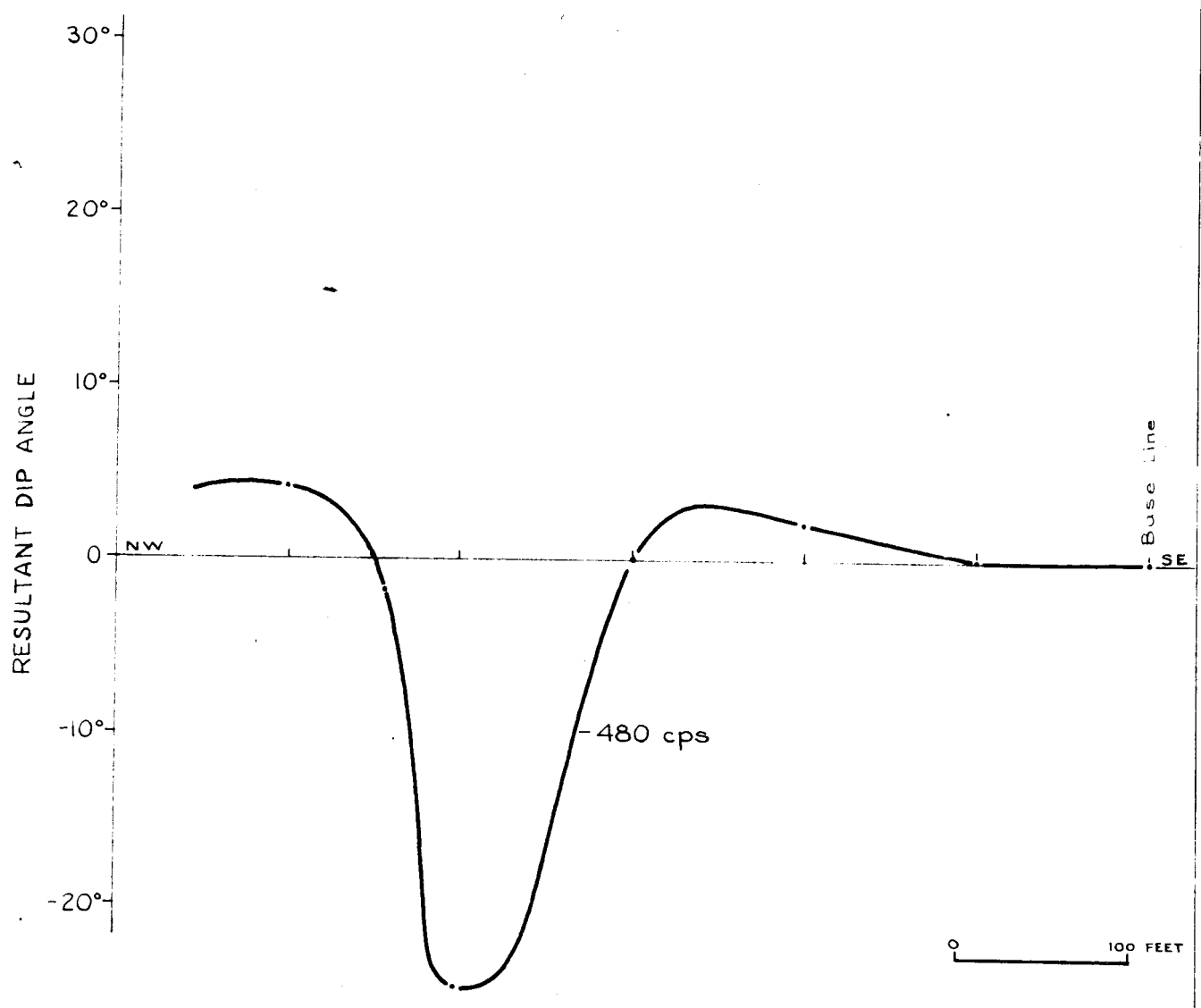


FIG. 6

DDH ED<sup>1</sup>.

DIP - 50°SE BEARING S

0	16.0'	CASING.
16.0'	55.0'	Dark grey micaceous schist (some biotite + sericite.) Schistosity angle 50° CA. Very broken core @ 18-19, 20-24, 26-30, 34-36, 38-39, 42-42.5.
55.0	56.5	Light grey massive quartz vein? with < 0.2% Py on contact. Contact angle 50-55° CA.
56.5	59.5	Dark grey mica schist, as above.
59.5	61.2	Grey-white quartz vein with 1/2" Py vn @ 60.4 Contact angle @ 61.2 - 60° CA.
61.2	72.0	Dark grey mica schist as above. Schistosity angle @ 50° CA. V. bc. 62.5-64.0. CAVE @ 71-72.
	72.0.	HOLE ABANDONED IN CAVE @ 72.0'



152.5 156.0 Recemented grey schist (Calcite + green carbonate)  
Occ. quartz. Fracturing parallel CA. to 40° CA.  
Probably a minor shear zone.

156.0 186.0 Dark schist, as before.

186.0 187.5 MINOR MINERALIZATION. 1-2% Pyrite, Galena,  
and sphalerite, disseminated along fractures  
parallel CA.  
0-1/4" 40° vein calcite + sphalerite @ 190.3.  
Schistosity angle through this zone 65° CA.

187.5 193.3 Dark grey schist. Occasional trace sphalerite & 1/2% Pyrite.

193.3 198.0 Lt. grey fractured quartz schist. Occasional  
cluster disseminated Py + Galena 1%.

198.0 217.8 Dark brown biotite quartz schist, as before.  
Schistosity angle 60° CA. Some highly <sup>ALTERED</sup> light brown  
garnet (scattered) from 199.0' →

217.8 220.1 Light grey gneiss?? - granulite? Quartzite?  
with 1% matrix and red garnets (2mm)  
Contact angle @ 220.1 = 50° CA.

220.1 231.4 Dark brown biotite quartz schist, as before.  
1% garnet.

231.4 233.2 Fractured grey schist. Quartz veins predominate.

SAMPLING.				ASSAYS.							
FROM	TO	LENGTH	NO.	Ag <sub>oz</sub> x L.	Zn x L.	Pb x L.	Cu x L.				
	183.0	186.0	3.0	17504	0.04	TR	TR	TR			
	186.0	187.5	1.5'	17501	2.04	1.3	2.3	0.03			
	187.5	190.0	2.5'	17502	0.10	0.10	0.10	TR			
	190.0	190.5	0.5'	17503	0.16	0.40	0.40	TR			
	190.5	195.5	5.0	17505	0.12	0.7R	TR	TR			
	195.5	199.0	3.5	17506	0.14	0.10	TR	TR			













FROM	TO	DESCRIPTION	FROM	TO	LENGTH	SAMPLE NO.	Ag	L	Zn	Pb	Cu
139.0	151.5	Dark grey biotite schist. Iron con in 1" pieces or smaller 3" quartz vein @ 141.0 with trace pyrite. Iron pyrite on slip faces. <del>SAND @ 150.0?</del>									
151.5	154.0	Dark biotite schist, occasional trace pyrite. Schistosity $40-55^\circ$									
154.0	178.0	Altered grey schist, quite broken to 160.5, + @ 163-164 165-166, 167-167.5. Schistosity angle varies from $50-75^\circ$ CA. Very broken con 169.5-172; 172.7-178.0. LOST CORE: 1.0' @ 153-155; 0.5' @ 157.5-158.5; 1.0' @ 158.5-160.5; 1.0' @ 160.5-162.0.									
178.0	225.0	Light grey and brown banded schist (Brown biotite) with scattered 1/8" quartz layers. Lighter colour schist than seen elsewhere. Schistosity angle $80^\circ$ CA. Occasional 1/2" quartz layers with trace pyrite. Calcite plus minor chlorite along slip faces parallel CA @ 224-225. Broken con 1.6' @ 210', 212', 214', 216', 221' + 224'									
225.0	251.0	Grey green schist. 1/4" pyrite, calcite, quartz vein @ 225.7. 1/4" pyrite band @ 229.0. Quartz and calcite visible throughout. 2% pyrite @ 242.5-244 CORE COMPLETELY SHATTERED @ 228.0 (3"-4"); 231 (4"-6") 233 (6"), 236-237. Very broken con @ 232-234, 235-238	224	228	4.0	17517	0.20		TR.	TR.	0.01
			241	245	4.0	17518	0.20		TR.	TR.	TR.
			M.A. @	250	-	17519	0.20		TR.	TR.	TR.
173.5	236.5	Light grey Quartzite? or altered granodiorite. 1-2% mafic MUD (SILTY SAND @ 250.0?).									
151.0	269.0	Dark grey quartz biotite schist with altered brown garnet? 1.0' white quartz + chlorite schist. Specks @ 262-263 + 1-2% Pyrite + p.p. Schistosity angle $80-90^\circ$ CA. LOST CORE 2.0' @ 261-265.	263.0	264.0	1.0	17520	TR.		TR.	TR.	0.01
			264.0	269.0	5.0	17521	0.06.		TR.	TR.	0.01



SILVER ARROW EXPLORATIONS LTD. (N. P. L.)

REPORT ON DIAMOND DRILLING ON  
ED # 13 MINERAL CLAIM  
NEAR SWIM LAKE, YUKON TERRITORY  
DECEMBER 1966 to FEBRUARY  
1967

---

M. P. Stadnyk  
February 14th, 1967.

## INTRODUCTION

In 1966, a grid was prepared for a geophysical survey on the Ed #13 Mineral Claim, located near Swim Lake, Yukon Territory. (See location map). In December, 1966, to February, 1967, 1,424 (One thousand four hundred and twenty four) feet of diamond drilling was completed on six holes by Silver Arrow Explorations Ltd. (N.P.L.) Purpose of this drilling was to test a strong geophysical anomaly detected in 1966.

A tote road, 6.5 miles long, suitable for 4 x 4 vehicles was constructed from near the Swim Lake camp (Dynasty) to the Silver Arrow camp.

A survey was carried out on the northern portion of the grid, to locate as accurately as possible positions of diamond drill holes.

For details of property location and previous work, consult reports by P. H. Sevensma Consultants Ltd.

## CONCLUSIONS AND RECOMMENDATIONS

1. No significant grade of mineralization was encountered.
2. The most important intersection measured 1.5 feet in length and contained 2.04 ounces per ton silver; 2.3% lead; 1.3% zinc and 0.03% copper. See drill log for hole number Two (2).
3. Grid cut in 1966 caused some confusion with the result that more footage was drilled than necessary, to test the electromagnetic anomaly.
4. More detailed geophysical work should be carried out before diamond drilling is attempted elsewhere in the area.

5. No further work is recommended for Ed #13 Mineral Claim.

### DIAMOND DRILLING

A total of 1,424 feet of diamond drilling on six holes was drilled between December 23rd, 1966, and February 5th, 1967.

Core recovery in all holes was good, in some holes as high as 98%. Cementing was necessary in three holes (especially the last one). This caused a total delay of approximately three days and 325 feet had to be re-drilled.

Overburden averaged twelve feet in depth.

Copies of drill logs were sent to Vancouver when each hole was completed, or at the first opportunity. Copies of all logs are included with this report.

### SUMMARY OF DIAMOND DRILL HOLES

<u>Hole No.</u>	<u>Dip</u>	<u>Depth</u>	<u>Casing:Ax</u>	<u>Bx</u>	<u>Bedrock</u>	<u>Commenced</u>	<u>Completed</u>
ED #1	- 50 SE	72'	27'	22'	10'	23 Dec. /66	26 Dec. /66
ED #2	-49 SE	430'	25'	18'	18'	27 Dec. /66	5 Jan. /67
ED #3	-50 E	207'	38'	9'	12'	6 Jan. /67	13 Jan. /67
ED #4	-60 SE	95'	8'	3'	6'	16 Jan. /67	17 Jan. /67
ED #5	-50 SE	326'	12'	9'	10'	19 Jan. /67	24 Jan. /67
ED #6	-60 SE	294'	48'	9'	12'	25 Jan. /67	5 Feb. /67

### MINERALIZATION

Low grade mineralization was found in hole #2 at 186.0 feet to 187.5 feet. Assay - 2.04 ounces per ton silver, 2.3% lead, 1.3% zinc, 0.03% copper. Elsewhere only minor values (less than 1/2% or 0.2 ounces per ton silver) were found. See drill logs for holes numbers 2, 3, 5 and 6.

Only pyrite could be seen where these low values were obtained.

Mineralization appeared to be confined to the schists.

### GEOLOGY

Two main rock types are found on this claim. They are a quartz rich, biotite, sericite, chlorite schist and granodiorite. Both rocks exhibit strong alteration (especially granodiorite).

Diamond drilling indicates that the granodiorite is either a very thick sill or possibly a stock like intrusion. The boundary of schists-granodiorite to the east is straighter than previously thought, as shown on the drill plan. This information is inferred from drilling as snow and overburden covers most of the rock here. Overburden ranges from 2 to 20 feet in depth.

### SURVEY

A chain and compass survey of the northern portion of the grid was carried out when discrepancies were found in the 1966 maps. The present survey has some errors, but a transit is necessary for an accurate survey. Results of this survey are shown on the diamond drill plan.

### ROAD

A tote road, suitable for 4 x 4 vehicles was built from camp to join the Swim Lake road at a point two miles east of Swim Lake.

(Dynasty) camp. Total length of this new road is 6.5 miles. If this road is to be used in the summer, then a couple of inexpensive bridges will be necessary.

The value of this road should become apparent when costs of mobilization vs. demobilization are compared.

An application for "tote road assistance" should be made to the Yukon Territorial Government for this section of the road.

### COMMUNICATIONS

A single side band radio belonging to P. H. Sevensma Consultants Ltd. was used for communication between camp, Ross River and Whitehorse. This service was handled by Northwest Expediting Ltd., Whitehorse, Y.T. CNT channels, could not be relied upon because of poor reception or overload of calls through Fort Nelson, B.C.

### MISCELLANEOUS

1. CAMP. Camp consisted of four framed tents (Cook tent, two drillers' tents, and engineer's tent). Heat was supplied by oil stoves. Water Froze near the floor, but the roof was warm.
2. TEMPERATURES. Temperatures ranged from - 60 degrees F. (below zero) to + 20 degrees F. (above zero). Low temperatures were an inconvenience during drill moves as machines would quickly freeze up.
3. TRANSPORTATION: Transportation was by road, if a truck was

available, or by air if ice conditions (as well as flying conditions) were satisfactory. Ice was deteriorating when the programme ceased, and it was becoming dangerous for planes to land near the camp. The road more than paid for itself during the short time it was in use.

4. DIAMOND DRILL CORE: With the exception of one box from hole No. 2, all core was left at the camp. One box which contained the 2.04 oz. silver, plus core specimens were sent to Dr. Sevensma at Whitehorse for his inspection.

Report respectfully submitted.

*M. P. Stadnyk*  
"M. P. STADNYK"

Geologist.

FOR: Services rendered to Silver Arrow Explorations Ltd. (N.P.L.)

1.	As per contract for Six (6) weeks. December 17th, 1966, to January 27th, 1967	\$1,200.00
2.	Eleven (11) days beyond contracted time. Normal fee \$60.00 per day plus expenses. Reduced fee to Silver Arrow \$40.00 per day plus expenses - January 28th 1967 to February 7th, 1967	440.00
		<hr/>
	Total:	\$1,640.00
	Less - paid on account	1,200.00
		<hr/>
	OUTSTANDING FEE:	\$ 440.00
		<hr/> <hr/>

"M. P. STADNYK"

CASH RECEIPTS

December

15th	F. Goertz - Vancouver	\$31.75	
15th	Clarke & Stuart	36.10	
16th	F. Goertz	3.15	
16th	Wilson's Stationery	2.00	
17th	Taxi	4.25	
19th	Taylor & Drury	1.84	
19th	Hudson's Bay	4.95	
19th	Northern Metallic	16.93	
19th	Capital Hotel	21.00	
20th	Taylor & Drury	2.39	
20th	Johnson's Crossing	9.35	
20th	R. N. Peltola	100.00	
31st	Tourist service	6.60	
31st	Seeleys	2.50	
31st	Taylor & Drury	6.95	
31st	General expenses	<u>4.93</u>	254.69

January

2nd	Capital Hotel	116.60	
5th	Bank of Montreal	2.00	
6th	Seelys	5.50	
8th	Capital Hotel	73.95	
8th	Hougens	.51	
8th	Hougens	2.98	
24th	G. S. C.	.55	
26th	Capital Hotel	<u>23.30</u>	225.39

February

6th	Canadian Coachways	7.85	
7th	Capital Hotel	<u>10.40</u>	18.25

Expenses - no receipts

Meals - December	60.00	
- January	50.00	
- February	<u>20.00</u>	

c/f                      130.00

b/f 130.00 498.33

Expenses - no receipts (contd)

Spirits - public relations - medicine	17.15	
Papers for camp	4.50	
postages	2.00	
Taxi - Whitehorse	12.00	
Taxi - Abbotsford/Vancouver	<u>10.00</u>	175.65

Total expenses: \$, 673.98

Monies advanced:

December 16th	Vancouver	150.00	
December 19th	Whitehorse	500.00	
December 20th	Whitehorse	50.00	
January 10th	Whitehorse	1 000.00	
January 12th	Whitehorse	<u>1000.00</u>	

Total advanced: \$ 2700.00

Cash on hand, Bank of Montreal, Whitehorse \$1256.40

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1930.38

Overdrawn on expenses - cheque returned for 769.62

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\$ 2700.00

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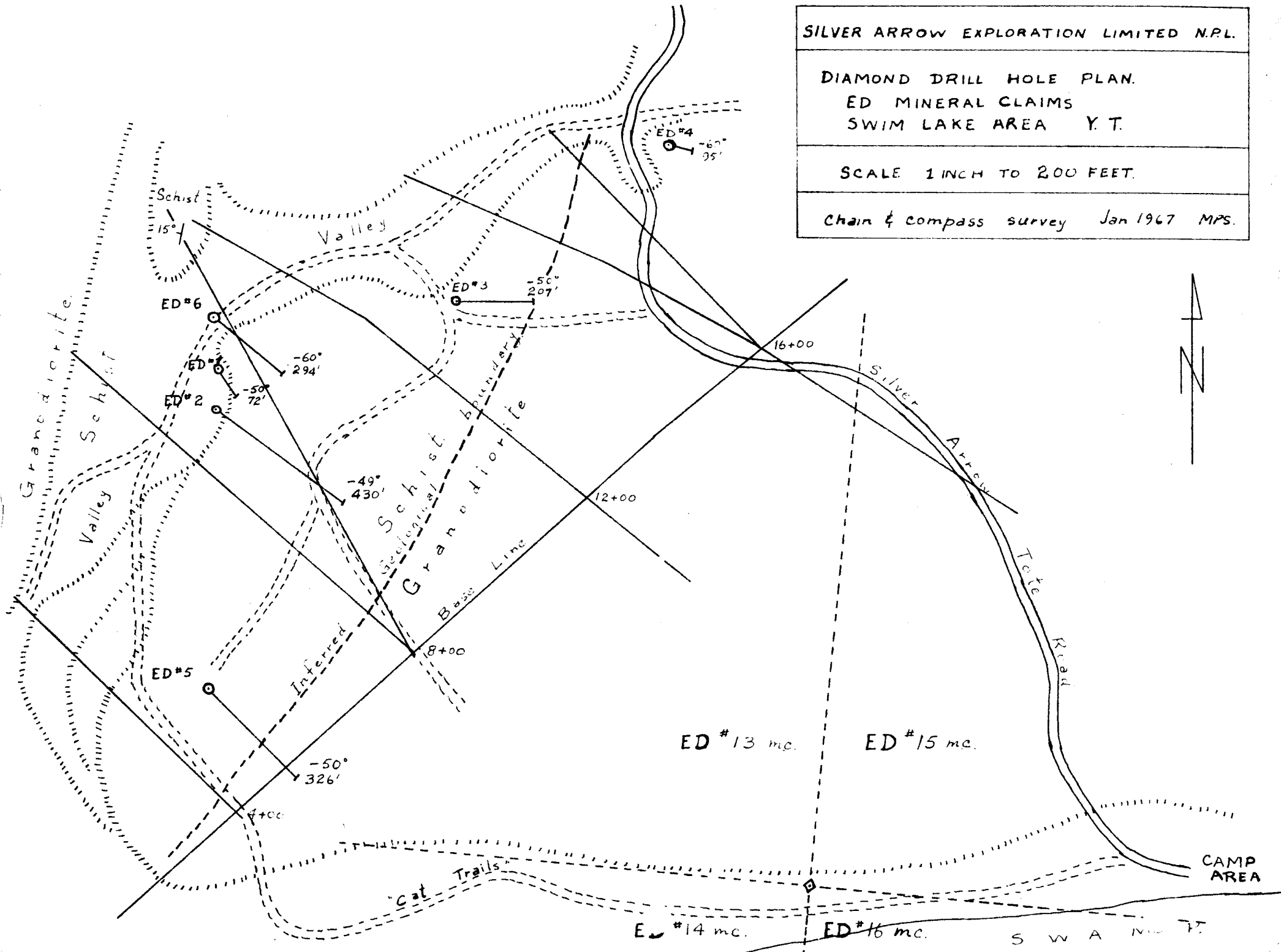
"M. P. STADNYK"

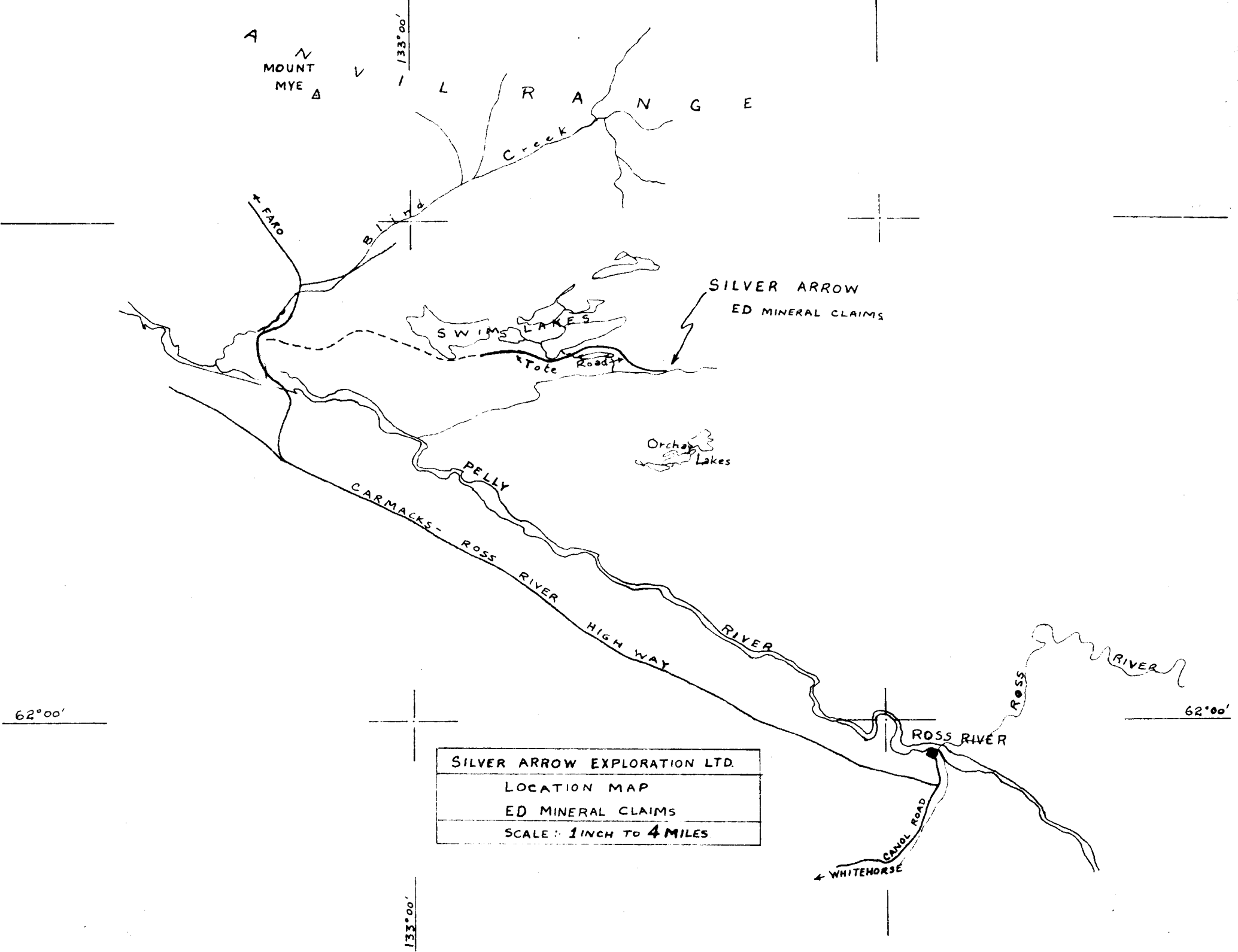
SILVER ARROW EXPLORATION LIMITED N.P.L.

DIAMOND DRILL HOLE PLAN.  
ED MINERAL CLAIMS  
SWIM LAKE AREA Y.T.

SCALE 1 INCH TO 200 FEET.

Chain & compass survey Jan 1967 M.P.S.





A  
MOUNT  
MYE  
A

133°00'

CRANK

Creek

FARD

BILTA

SILVER ARROW  
ED MINERAL CLAIMS

SWIMS LAKES

Tote Road

Orchard  
Lakes

PELLY

CARMACKS-ROSS RIVER  
HIGHWAY

ROSS RIVER

ROSS

RIVER

62°00'

62°00'

SILVER ARROW EXPLORATION LTD.
LOCATION MAP
ED MINERAL CLAIMS
SCALE: 1 INCH TO 4 MILES

133°00'

CANOL ROAD  
WHITEHORSE