

LOG NO: JUN 10 1991 K
ACTION:
FILE NO:

ASSESSMENT REPORT FOR GEOLOGICAL WORK
LILLIE JAMES PROPERTY

GREENWOOD MINING DIVISION
NTS 82E/2E

Lat: 49° 02' N
Long: 118° 37' W

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

21,387

Kettle River Resources
Box 130
Greenwood, B.C.

Linda Caron
May, 1991

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1.0 INTRODUCTION

1.1 Location, Access and Terrain

The Lillie James property is located about 7 kilometres southeast of Greenwood, B.C., on the southern slope of Mount Attwood. Access to the claim is by McCarren Creek road, east from Highway 3 about 10 kilometres to the intersection with the Lone Star haulage road. At this point turn north on the haulage road for about 300 metres to an old road leading west. Follow this road about 600 metres to the property. Several old roads and cat trails provide good access to the claim.

The terrain is moderate, with elevations ranging from about 1400 metres in the southern part of the claim to about 1525 metres to the north. Mature second growth cedar, larch and fir cover most of the property. Undergrowth is minimal and rock exposure is generally good.

1.2 Property and Ownership

The property consists of one reverted crown grant mineral claim, the Lillie James (L1724, Record Number 3182), owned by Kettle River Resources Ltd. of Greenwood, B.C. After acceptance of this report, the expiry date of the claim will be May 14, 1995.

1.3 History

Little is known about the history of exploration on the property. The Annual Report of the Minister of Mines shows that crown grant status was given to the Lillie James in 1905. Beyond this, several old pits and adits are the only record of work done in the past on the claim. Considerable exploration appears to have been done on ground immediately adjoining the Lillie James, as evidenced by extensive bulldozer trenching. Assessment Reports 11,423 and 13,137 describe recent work done by Ossa Resources on

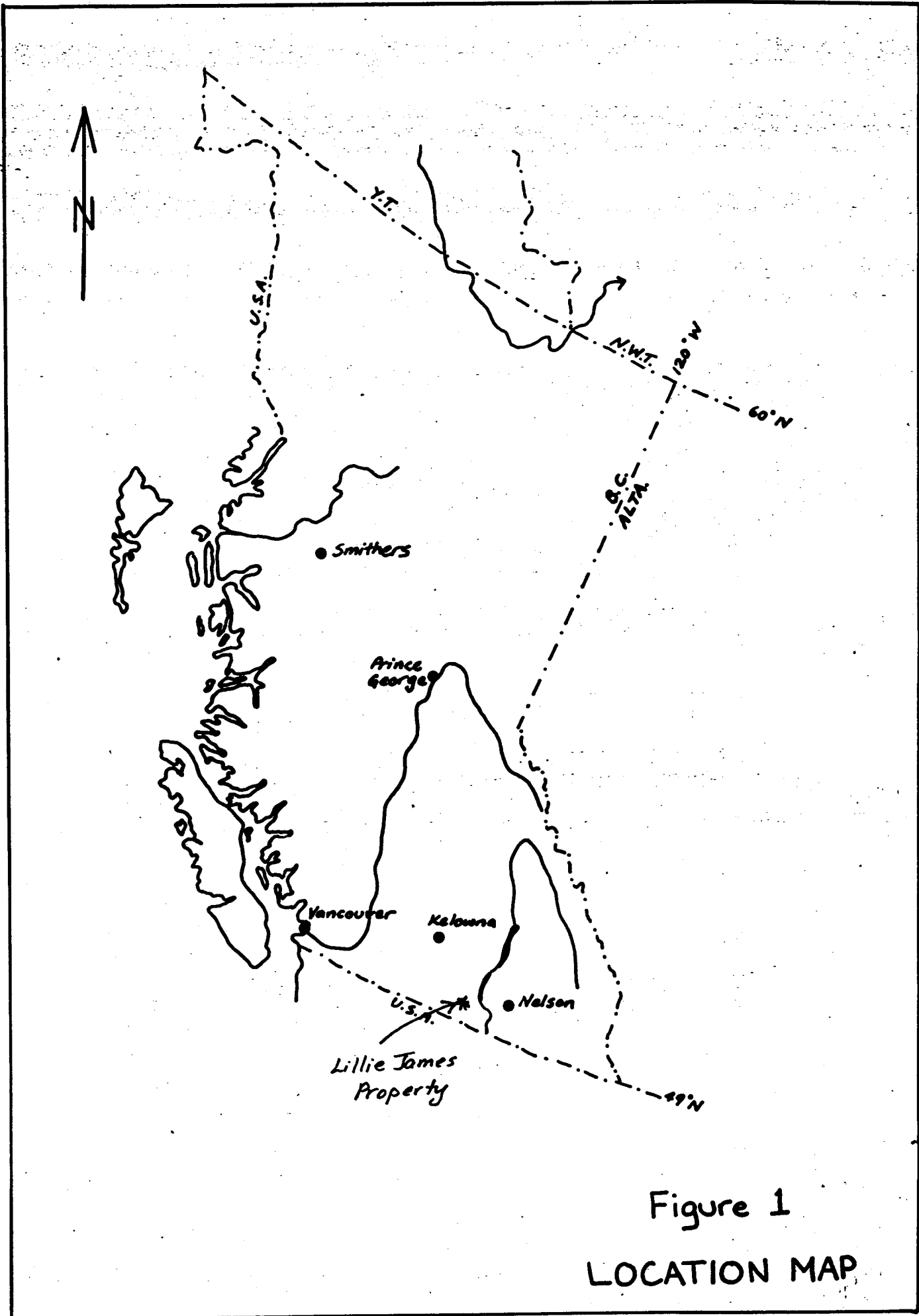
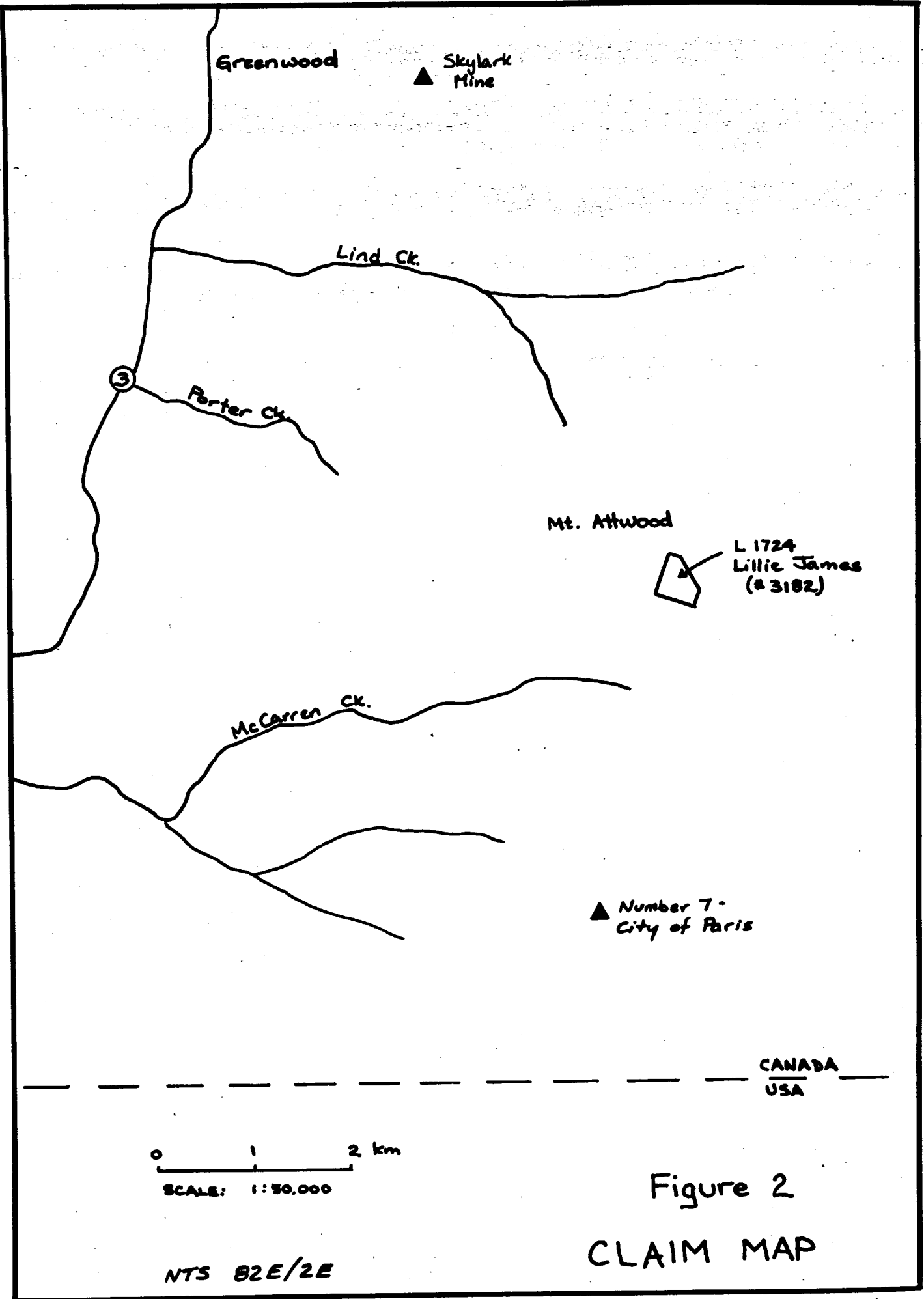


Figure 1
LOCATION MAP



the surrounding Set claims. Of particular interest is a large E-NE trending gold soil anomaly which strikes through the centre of the Lillie James property (coinciding with the position and orientation of the fault recognized during this program).

1.4 Summary of Work Done, 1991

Work done during 1991 consisted of a short geological mapping and sampling program, conducted between May 10 and May 13, 1991. A total of 6 rock samples was collected from the property (an additional three samples were collected from adjacent ground); all work was done by L. Caron.

2.0 GEOLOGY

2.1 Regional Geology

The Greenwood area has been mapped on a regional basis by a number of people, most recently by Fyles (1990), and prior to this by Little (1983) and Church (1986). Although all these authors generally agree on the ages and distribution of the geological units, Fyles' work is the first to give an adequate interpretation explaining this distribution. His mapping shows that the pre-Tertiary rocks form a series of thrust slices, which lie above a basement high grade metamorphic complex. A total of five thrust slices are recognized, all dipping gently to the north, and bounded in many places by lenses and bodies of serpentine. While earlier mapping has interpreted these serpentinite bodies as ultramafic intrusions, Fyles shows them to belong to the Knob Hill Group of late Paleozoic age, and to represent part of a disrupted ophiolite suite. The common Fe-carbonate alteration of these serpentinites to listwanite is a result of the thrusting event.

The Lillie James property is shown by Fyles to be contained in the third thrust slice (between the Mount Wright and Mount Attwood faults), and to be underlain by volcanic rocks of the Triassic Brooklyn Formation. The Mount Attwood fault is shown to be immediately north of the claim.

2.2 Property Geology

The Lillie James property was mapped at a scale of 1:2000, as shown on Figure 3. During the course of mapping, three distinct geological units were recognized, as follows:

JURASSIC

Unit 3: Nelson granodiorite -

Coarse grained, pale grey-green, salt & pepper texture with 50% feldspar, 50% mafics (alt'd to chlorite). Equigranular, avg 3mm.

TRIASSIC

Unit 2: Brooklyn Formation - Pale grey-green, massive, Greenstone and blocky fracture, fine grained, Microdiorite locally coarse mafics visible. Pervasive chlorite alteration common.

PERMIAN

Unit 1: Knob Hill Group - Very well foliated, orange-brown weathered surface. Fine Listwanite grained, grey fresh surfaces.

The oldest rocks recognized on the property are listwanites, belonging to the Permian Knob Hill Group. Throughout the Greenwood area these rocks mark the positions of major thrust faults. Only one listwanite outcrop was observed on the property, and is believed to mark the position of such a structure.

The remainder of the property appears to be covered by fine grained greenstone and microdiorite of the Triassic Brooklyn Formation. These rocks were observed both above and below the inferred thrust fault described above. Adjacent to the fault the rocks are carbonate altered and contain finely disseminated pyrite. Quartz veining is relatively common in the vicinity of the fault. Several short adits and old blast pits were observed in this area. Elsewhere on the property, the microdiorite may be silicified, epidotized, or chloritized. Disseminated pyrite is not uncommon. In several places on the claims and adjoining ground, evidence of substantial bulldozer work was seen, testing areas of altered microdiorite.

A few hundred metres northeast of the northern claim boundary, several outcrops of coarse grained Nelson granodiorite were observed. Quartz stringers and pyrite mineralization are common in this unit and a significant amount of bulldozer trenching has been done in the area.

Regional mapping by Fyles shows the Mount Attwood fault to be parallel to the fault defined by the listwanite outcrop, but located several hundred metres to the north. Fyles also shows that the Triassic rocks are restricted to the lower thrust slice. As

described above, this is not the case on the Lillie James claim. Not enough regional mapping was done to determine if the east-west fault mapped was actually the Mount Attwood fault, or whether it is simply a smaller, parallel structure. In either case, it is important in controlling alteration and mineralization and should be further explored.

3.0 ROCK GEOCHEMISTRY

A total of nine rock samples was collected from the Lillie James claim and surrounding area (six of these were from the actual claim). Rock sample locations are shown on Figure 3. Sample descriptions are contained in Appendix I and complete analytical results are included in Appendix II. Results for gold and silver are shown on Figure 4.

All rock samples were shipped to Min-En Laboratories in North Vancouver, for preparation and analysis. Samples were dried and crushed by a jaw crusher then pulverized on a ring mill pulverizer. A six element ICP package was run on all samples (Ag, As, Cu, Pb, Zn, and Cr). Detection limits are 1 ppm for all of these elements, except silver which is 0.1 ppm. Gold analysis was done by fire geochemical methods; the detection limit for this analytical method is 1 ppb.

Sample LJ-08 was collected from carbonate altered, pyritic microdiorite, adjacent to the inferred fault. The sample was taken from the dump pile of a short adit, and returned values of 369 ppb Au and 7.2 ppm Ag (as well as 63 ppm As and 372 ppm Cu). Of further interest is the fact that the nearby fault coincides in attitude and location with a large gold soil anomaly defined by Ossa Resources while conducting work on the surrounding Set claims. The large size of the anomaly suggests that the alteration is fault related and probably widespread. Further testing of this zone is definitely warranted.

Two samples of white quartz veins, hosted within the microdiorite and occurring in the vicinity of the thrust fault were collected (LJ-01, LJ-06). No elements were significantly enriched in the veins. Both samples are very low in silver (0.1 ppm compared to 1.1 - 7.2 ppm Ag from other samples), suggesting a discreet mineralizing event for the quartz veins.

Weakly anomalous silver values (3.1 and 3.2 ppm) were returned from two samples of silicified, epidotized and pyritic microdiorite. No other samples contained any significant anomalous values.

4.0 SUMMARY AND CONCLUSIONS

A short geological mapping and rock sampling program was done on the Lillie James property, near Greenwood, in May, 1991. Mapping revealed the claim to be underlain almost entirely by Triassic Brooklyn microdiorite, which is locally altered (epidotized, silicified, chloritized, or carbonitized). Disseminated pyrite mineralization is relatively common. An east-west trending, moderately north dipping fault was interpreted on the property, which appears to control mineralization. Anomalous gold, silver, copper and arsenic values occur in carbonitized, pyritic microdiorite immediately below the fault. A large gold soil anomaly is also known to coincide with the fault.

5.0 RECOMMENDATIONS

Further testing of the east-west fault zone on the Lillie James claim is recommended. If possible, additional ground should be acquired along the strike extension of this structure and a grid should be established on the property for better control. Detailed mapping on this grid would aid in better defining the position of the fault and soil geochemistry would be an effective method for testing areas of little outcrop. Any targets arising from this program could be tested by backhoe trenching.

A short regional mapping program would help in better understanding the position of major structures and controls of mineralization.

6.0 REFERENCES

Church, B.N., 1986.

Geological Setting and Mineralization in the Mount Attwood-Phoenix area of the Greenwood Mining Camp. BCDM Paper 1986-2.

Fyles, J.T., 1990.

Geology of the Greenwood-Grand Forks Area, British Columbia, NTS 82E/1,2. B.C. Geological Survey Branch Open File 1990-25.

Little, H.W., 1983.

Geology of the Greenwood Map area, British Columbia. GSC Paper 79-29.

APPENDIX I
ROCK SAMPLE DESCRIPTIONS

ROCK SAMPLE DESCRIPTIONS

- LJ-01 : Sample of quartz vein from dump of old pit in fine grained microdiorite. Massive white bull quartz with no visible mineralization.
- LJ-02 : Rusty outcrop near old cat trenches of silicified microdiorite with 10% pyrite.
- LJ-03 : Outcrop in road cut of equigranular, medium grained granodiorite intrusive, probably Nelson intrusive. Rusty frags, min qtz stringers, 3% pyrite.
- LJ-04 : Outcrop in roadcut of silic'd, grey-green, fine grained microdiorite, 15% fine diss py. V. rusty frags and weathered surfaces.
- LJ-05 : From bach trench in SE part of claim. Dark green, fng diorite-gabbro. Chlorite alt'd mafics in epidotized gmass.
- LJ-06 : Western claim boundary. Small old pit on white, bull qtz vn, 10-20 cm wide. No visible mineralization.
- LJ-07 : Outcrop in western part of claim. Strong Fe-carb alt'd serpentine (listwantite).
- LJ-08 : Dump of adit, western part of claim. Mod-str Fe-carb alt'n of microdiorite. 2-3% py (locally pods to 15%), fine qtz stringers.
- LJ-09 : White-grey qtz vnltts cutting alt'd microdiorite at location LJ-08.

APPENDIX II
ANALYTICAL RESULTS - ROCK SAMPLES

COMP: KETTLE RIVER RESOURCES
 PROJ: LILLIE JAMES PROPERTY
 ATTN: GEORGE STEWART

MIN-EN LABS — ICP REPORT
 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
 (604)980-5814 OR (604)988-4524

FILE NO: 1V-0438-RJ1
 DATE: 91/05/24
 * ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	CU PPM	PB PPM	ZN PPM	CR PPM	AU PPB
LJ-01	.1	9	47	9	11	203	15
LJ-02	1.8	1	106	3	26	57	15
LJ-03	1.4	1	79	5	29	87	8
LJ-04	3.1	1	122	3	53	74	18
LJ-05	3.2	1	136	3	43	119	22
LJ-06	.1	17	17	7	8	248	24
LJ-07	1.1	1	144	9	34	52	10
LJ-08	7.2	63	372	6	61	73	369
LJ-09	1.0	4	65	10	27	116	26

39 1335

APPENDIX III
COST STATEMENT

COST STATEMENT

1.0 Fees and Wages

L. Caron, Geologist 2 days @ \$250/day \$500.00

2.0 Analytical Results

Rock Samples: 6 @ \$22/sample \$132.00

3.0 Transportation and Accommodation

Truck rental 2 days @ \$45/day \$ 90.00

Fuel and Supplies 30.00

Room and Board 2 man days @ \$45/day 90.00

TOTAL: \$842.00

APPENDIX IV
STATEMENT OF QUALIFICATIONS

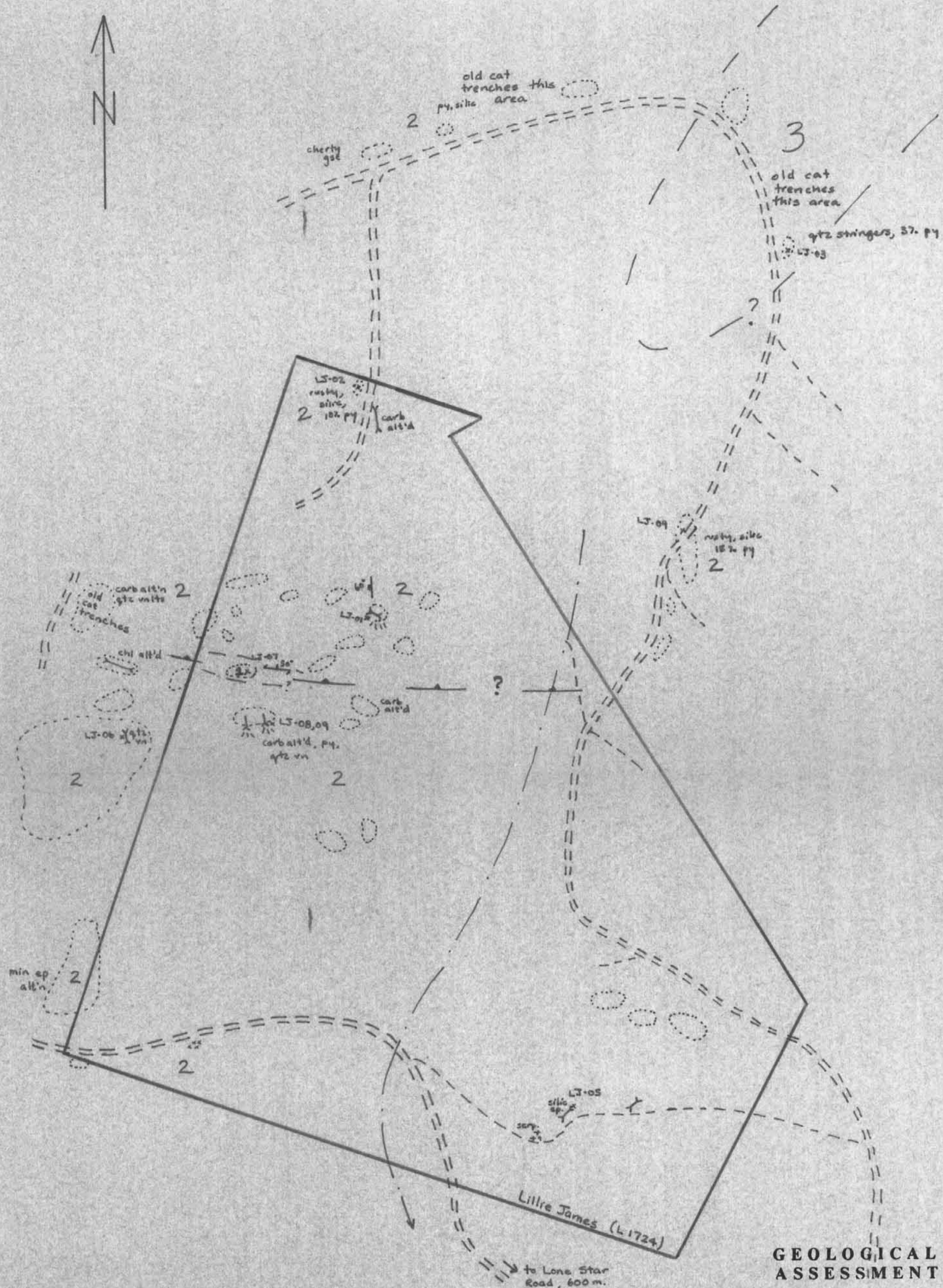
STATEMENT OF QUALIFICATIONS

I, Linda J. Caron, certify that:

- 1.0 I am an exploration geologist residing at Lind Creek Road (Box 248) Greenwood, B.C.
- 2.0 I obtained a B.A.Sc. in Geological Engineering (Honours) in the Mineral Exploration Option, from the University of British Columbia (1985).
- 3.0 I graduated with a M.Sc. in Geology and Geophysics from the University of Calgary (1988).
- 4.0 I have practised my profession continually since 1987 and have worked in the mineral exploration industry since 1980.
- 5.0 I was employed as an independent contractor by Kettle River Resources Ltd. to complete the work described in this report and have no other interests in the property. I have personally carried out this work program.

Date: May 31 / 91

L. Caron
Linda Caron



LEGEND

- 3 JURASSIC - Nelson granodiorite
- 2 TRIASSIC - Brooklyn Fin greenstone and microdiorite
- 1 PERMIAN - Knob Hill Group listwanite
- road
- outcrop
- - - geological contact
- fault
- x - trench, adit
- x rock sample location

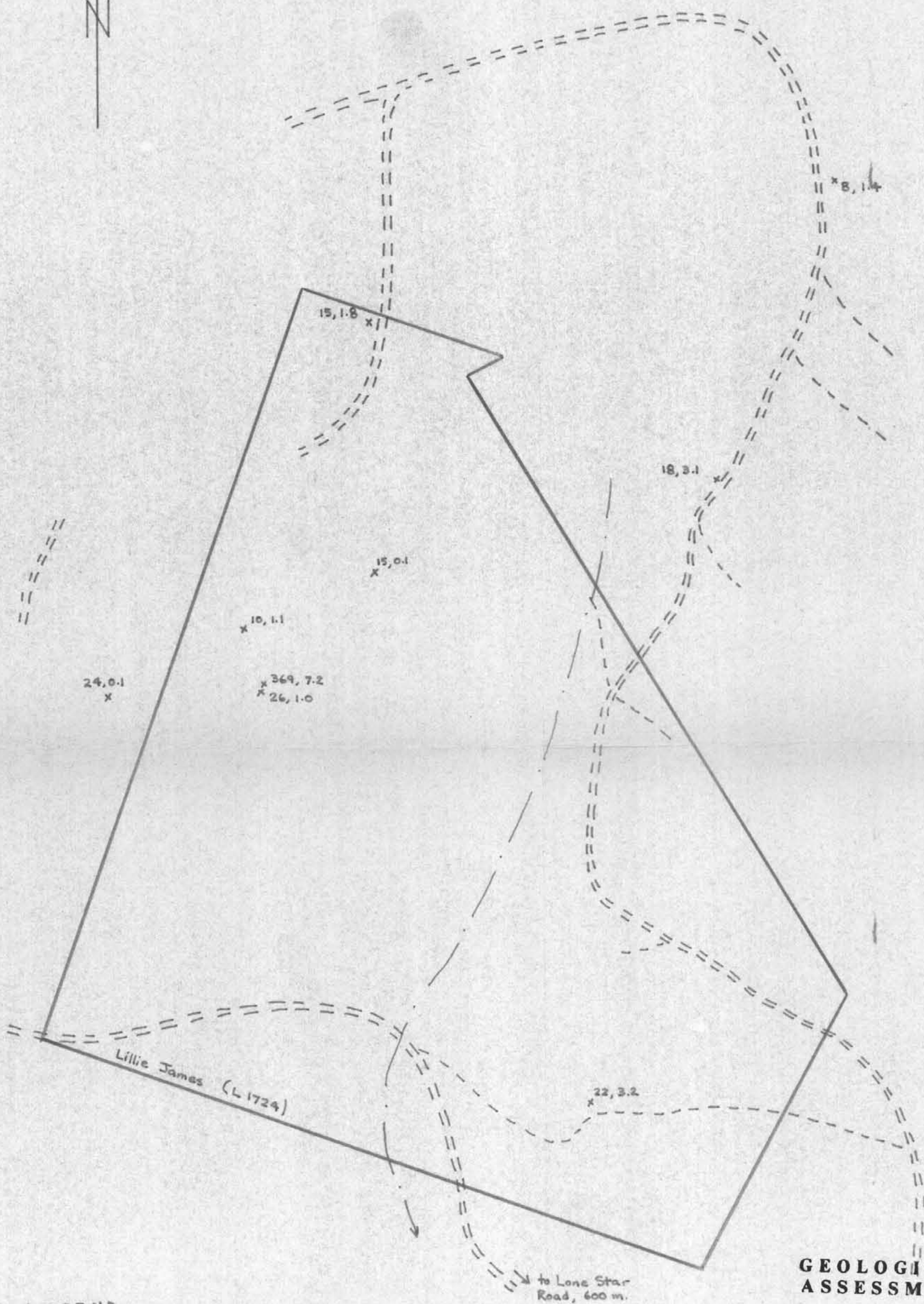
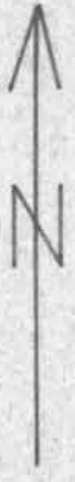
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SCALE 1:2000

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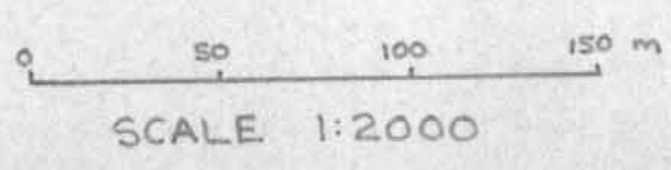
Figure 3

GEOLOGY AND ROCK
SAMPLE LOCATIONS



LEGEND

-  road
-  creek
-  rock sample
Au (ppb), Ag (ppm)



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Figure 4

**ROCK SAMPLE
RESULTS**