

LOG NO: 0307	RD.
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**GEOLOGICAL REPORT**  
**ON**  
**FOLLOW-UP INVESTIGATIONS OF THE**  
**KING CREEK SHOWINGS,**  
**HAWILSON LAKE PROJECT,**  
**UNUK RIVER AREA, BRITISH COLUMBIA**

**FILMED**

**Part 2**  
**OF 2**

**Skeena Mining Division**

**NTS 104B/7E**  
**Latitude 56° 28' 00" N**  
**Longitude 130° 34' 00" W**

**on behalf of**

**BETHLEHEM RESOURCES CORP.**  
**#860 - 808 West Hastings Street**  
**Vancouver, B.C.**  
**V6C 2X4**

**by**

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**GEOLOGICAL BRANCH**  
**ASSESSMENT REPORT**

**19,732**

**January 24, 1990**

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## **1.0 SUMMARY**

This report summarizes the results of follow-up investigations on the King Creek showings which are located on the Hawilson Lake property. This property is located 80 km north from Stewart and 19 km southwest of Eskay Creek. The work described in this report clearly establishes the King Creek showing as a gold prospect of merit and worthy of additional work.

Assays to date include 4,358 ppb Au (0.127 oz/ton Au) from grab sample KYR-33 (from previous work) and 1,738 ppb Au (0.051 oz/ton) over 0.50 metres from chip sample 3117C. Mineralization consists of shear hosted massive pyrite and possible replacement silica and sulphide mineralization exposed within a structurally complex zone across roughly 40 metres.

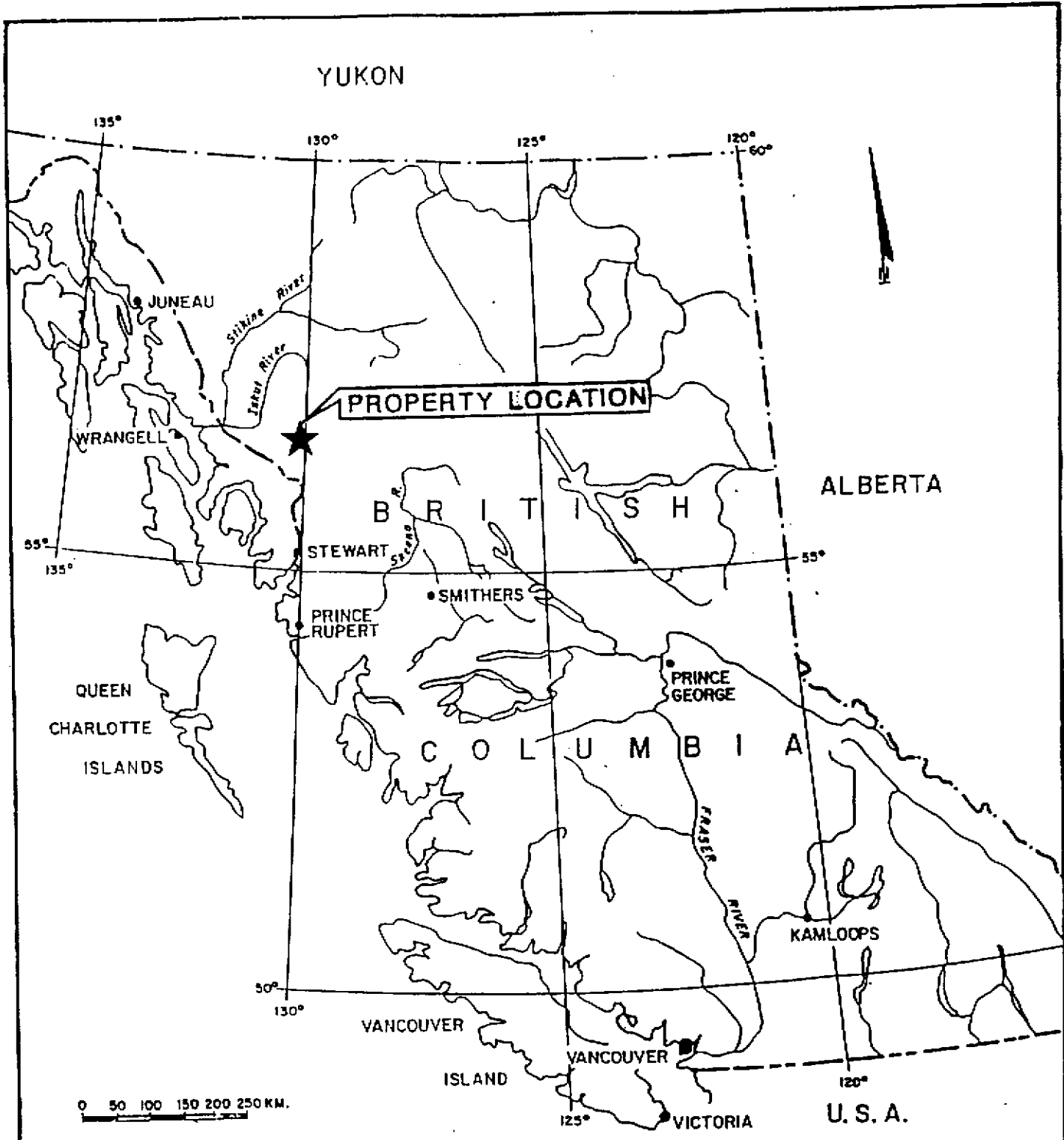
Although no high grade assays were obtained, the King Creek showing and the identification of a feldspar-hornblende porphyry intrusion signify the presence of a gold bearing system that could be developed into more significant proportions. A grid controlled soil sampling program, additional prospecting and investigation of the gossanous outcrops across King Creek would provide the best additional data for the progressive evaluation of the prospect.

## **2.0 INTRODUCTION**

In early November of 1989, the author and prospector Brian MacIntyre spent two days in the employ of Keewatin Engineering Inc. conducting a detailed follow-up mapping and sampling investigation of the King Creek gold showing located on Bethlehem Resources Corp.'s Hawilson Lake Property, roughly 80 kilometres north of Stewart in the Unuk River area. The work focused on gold mineralization revealed by earlier grab samples MacIntyre took while collecting heavy mineral samples nearby. Seven of these previous samples taken in the area returned encouraging elevated values in gold, lead, zinc, arsenic and silver, including grab sample KYR-33 which assayed 4,358 ppb gold (0.127 oz/ton Au). The recent follow-up work included two days of detailed chip sampling of the mineralized zone, plus additional detailed mapping, prospecting and sampling. Unfortunately, inclement weather conditions did not permit a full and proper examination of the area.

## **3.0 LOCATION, ACCESS AND PHYSIOGRAPHY**

The Hawilson Lake Property is located approximately 80 kilometres north of Stewart in northwestern British Columbia (Figure 1). The property boundary is bounded to the south by the Unuk River (Figure 2), just downstream from its confluence with the South Unuk River. The



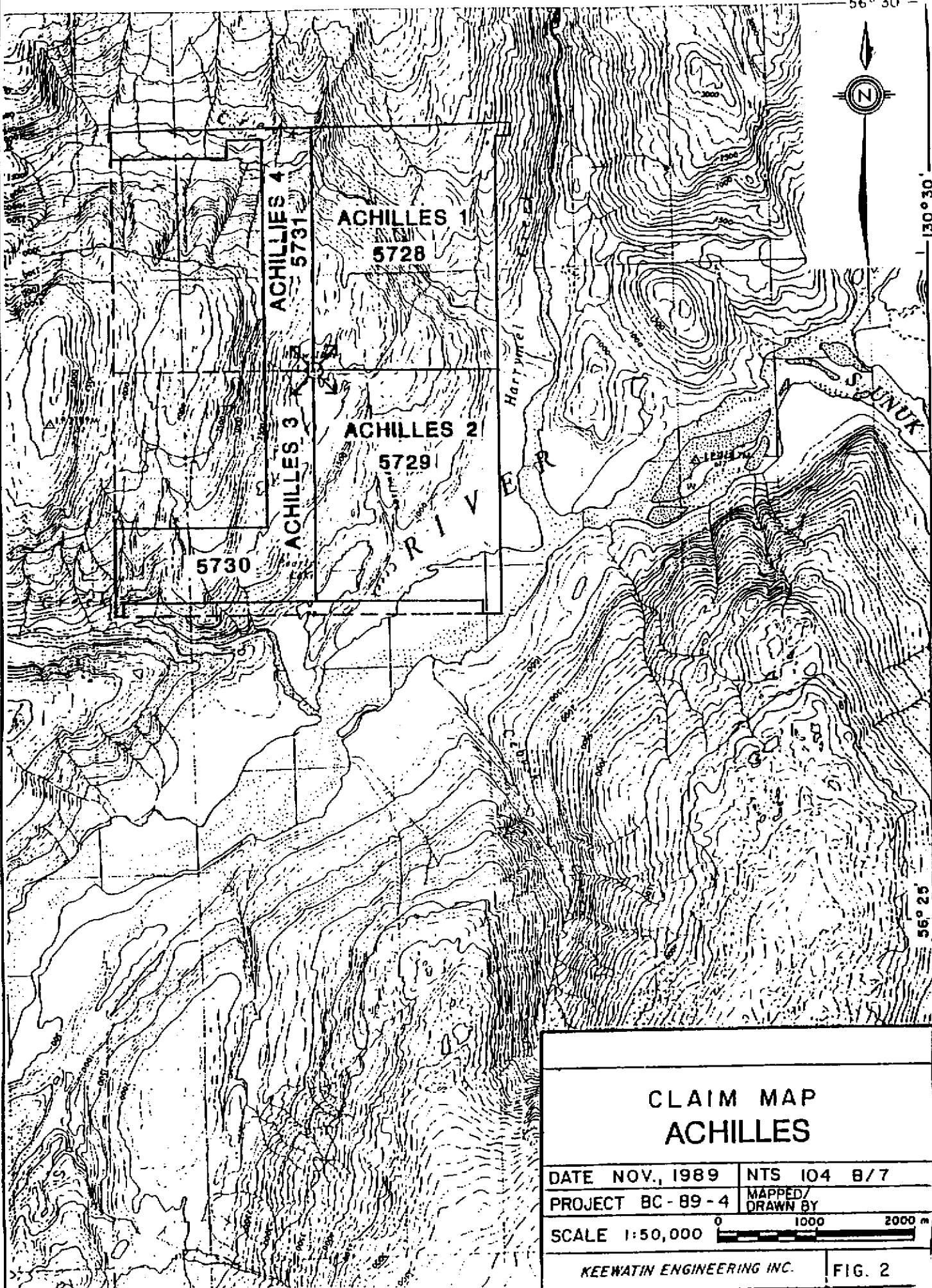
★ PROPERTY LOCATION MAP

Figure 1

56° 30'



130° 30'



56° 25'

# CLAIM MAP ACHILLES

DATE NOV., 1989	NTS 104 B/7
PROJECT BC-89-4	MAPPED/ DRAWN BY
SCALE 1:50,000	0 1000 2000 m

KEEWATIN ENGINEERING INC.

FIG. 2

property is bounded to the east by Harrymel Creek. The King Creek showing is located along the north bank of King Creek in the northeastern corner of the Achilles 4 claim (Figure 4).

Access to the area is by helicopter only, with the nearest point of origin in Stewart roughly 35 minutes away, weather permitting. The nearest roadway is Highway 37, 60 kilometres to the east. Smithers is 300 kilometres to the southeast and provides convenient daily flights to Vancouver.

The property is generally quite rugged with topography ranging in elevation from 150 metres (600 feet) along the Unuk River to 1,280 metres (3,300 feet) at the western boundary. The area is heavily forested with spruce, fir, hemlock and minor alder and aspen below the tree line at roughly 900 metres (2,950 feet) in elevation. Weather in the Unuk River valley is predominated by either rain or snow, the latter of which begins to accumulate at the lower levels by early November and doesn't clear until June or July.

#### 4.0 CLAIMS AND OWNERSHIP

The Hawilson Lake property (Figure 2) consists of four modified-grid claims totalling 80 units located within the Skeena Mining Division. Relevant claims data are tabulated below:

##### CLAIM STATUS

<u>Claim Name</u>	<u>No. of Units</u>	<u>Record Number</u>	<u>Date of Record</u>	<u>Expiry Year</u>	<u>Title Owner</u>
Achilles 1	20	5728	January 9, 1987	1990	Winslow
Achilles 2	20	5729	January 9, 1987	1990	Gold
Achilles 3	20	5730	January 9, 1987	1990	Corp.
Achilles 4	20	5731	January 9, 1987	1990	

These claims are apparently the subject of an agreement between the claim holder and Bethlehem Resources Corp. The claim records and maps show that the property was subsequently overstaked. The existence of precedent claims to the west has resulted in a backwards "C" shape for the resultant Achilles 3 and 4 claims (Figure 2). Most of the Achilles 3 and 4 claims encompass pre-existing mineral claims. The apparent true location of the LCP of these pre-existing claims (King 1-4) is reportedly west of where shown on the government claim map, subsequently revealing that the Achilles 3 and 4 would extend a further 180 metres west than shown along this boundary. Also, the fraction extending out at the northwest corner of the Achilles 4 is part of the Hawilson property.

The common LCP for the Achilles 1-4 claims was examined and is located at the north end of Hawilson Lake as it is shown on government claim maps. All corner post tags for each claim were affixed securely to it.

All work herein discussed was conducted on the Achilles 4 claim.

## 5.0 HISTORY

The area drained by the upper reaches of the Stikine, Iskut, Unuk, Craig, and Bell-Irving Rivers has been explored for gold since the late 1800's when prospectors passed through the region on their way to the interior. In the 1970's, the porphyry copper boom again brought prospectors and companies into the area. The current gold exploration rush began in 1980 with the option of the Sulphurets property by Esso Minerals Canada and the acquisition of the Johnny Mountain claims by Skyline Explorations Ltd. The Johnny Mountain deposit was brought into production in mid-1988 and the adjacent SNIP property is slated for production in 1990.

The mineralization at Eskay Creek was discovered in 1932 and active prospecting has continued sporadically since then. Two adits are the result of limited mining activity on this prospect. In 1988, Calpine Resources Incorporated discovered high-grade gold and silver mineralization on the '21 Zone' (Northern Miner, November 7, 1988). A number of excellent diamond drill intersections have been obtained to date including hole CA-88-06 which encountered 96 feet of 0.752 oz/ton gold and 1.13 oz/ton silver. Based on the results of 70 drill holes completed to June 1, 1989, a preliminary geological reserve grading 2.8 million tons of 0.23 oz/ton gold and 3.3 oz/ton silver has been calculated for the '21 Zone' (Consolidated Stikine Silver Ltd. N.P.L. 1989 Annual Report).

The Unuk River area was covered by regional geological mapping in 1988 as part of the Iskut-Sulphurets project conducted by B.C. Ministry of Energy, Mines and Petroleum Resources (Britten, et al., 1989). The whole of N.T.S. 104-B is currently being mapped by the Geological Survey of Canada (Anderson, 1989).

The results of a regional stream sediment sampling program conducted over this area were released in July 1988 (National Geochemical Reconnaissance, 1988). Britten et al. (1989) reported that almost every known precious metal prospect in the Unuk River area is associated with high stream sediment gold values. Known gold deposits are also associated with high but variable values for such pathfinder elements as silver, arsenic, antimony, and barium. Two stream sediment samples were collected from streams draining the Hawilson Lake property. One of these (#3315) exhibits

elevated values in antimony (4.3 ppm).

A review of the material in the government's Assessment Report Archives indicates that no work has been filed for the specific area now covered by the Hawilson Lake property. The files do, however, show that the entire Unuk River area was subjected to reconnaissance geological mapping and prospecting by Newmont Mines Ltd. in 1959-1962. This work did not discover any promising showings or prospects on the present day Hawilson Lake property. The assessment records also indicate that Duval Corp. conducted a regional heavy-mineral survey in the Unuk River area in 1981 (Korenic, 1982).

During the fall of 1989, Keewatin Engineering Inc. (Aussant and DuPre, 1989) evaluated the entire Hawilson Lake property with reconnaissance geochemistry, prospecting and geological mapping.

## **6.0 GEOLOGY**

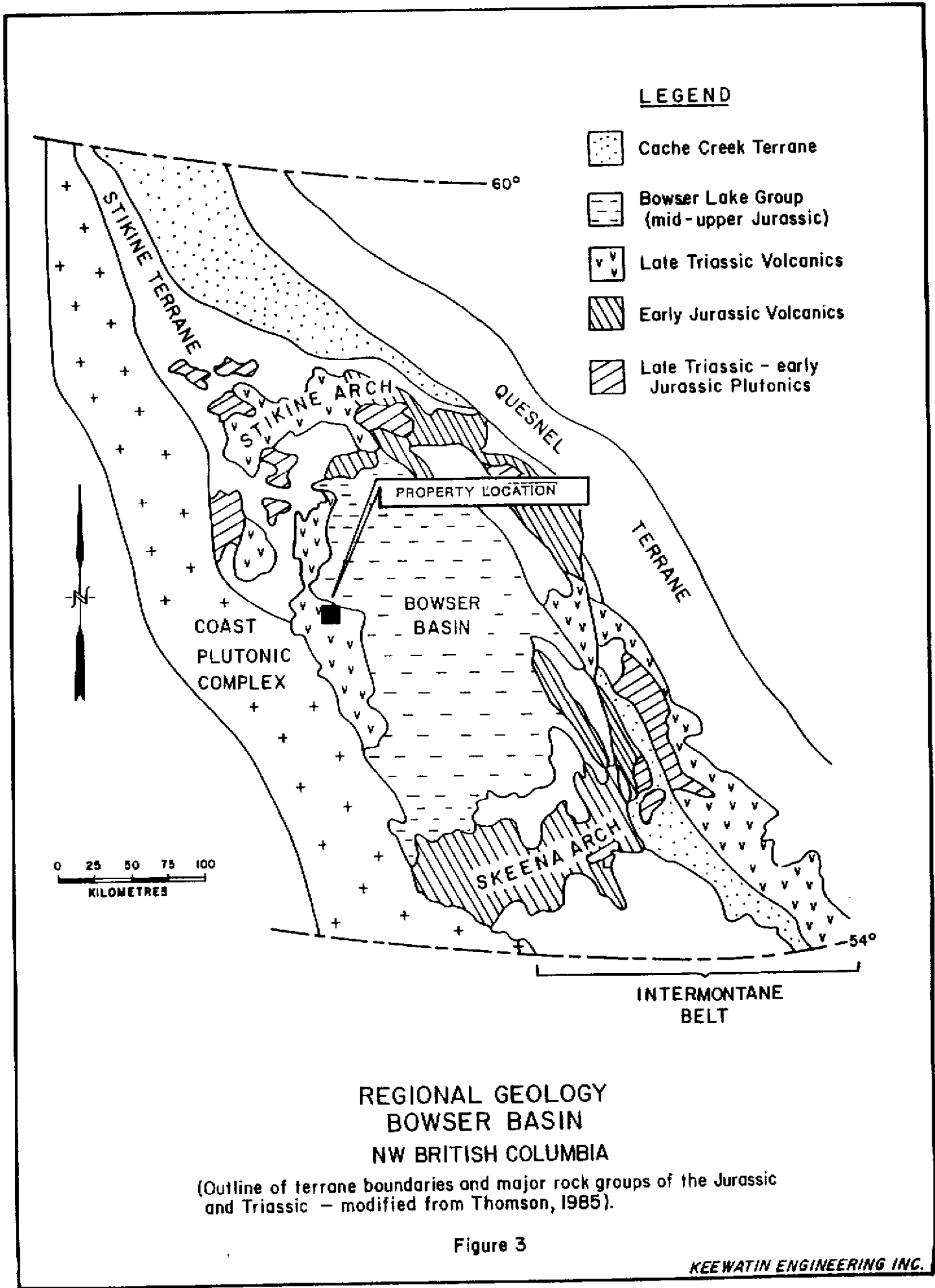
The property lies within the Intermontane Tectono-Stratigraphic Belt, one of five parallel northwest-southeast trending belts which comprise the Canadian Cordillera (Figure 3). The Hawilson Lake property occurs near the contact between the Stikine Terrane, which makes up most of the western part of the Intermontane Belt, and the unmetamorphosed sediments of the Bowser Basin.

### **6.1 Regional Geology**

The Unuk River area is underlain by a thick succession of Upper Triassic to Lower Jurassic volcano-sedimentary arc complex lithologies capped by Middle Jurassic marine basin lithologies. This package has been intruded by a variety of plutons representing at least four intrusive episodes spanning late Triassic to Tertiary time. These include synvolcanic plugs, small stocks, dyke swarms, isolated dykes and sills, as well as batholiths belonging to the Coast Plutonic Complex.

The stratigraphic sequence has been folded, faulted, and weakly metamorphosed during Cretaceous time but some Triassic strata are polydeformed and may record an earlier deformational event. Remnants of Pleistocene to Recent basaltic flows and tephra are preserved locally.





## 6.2 Property Geology

Regional geological mapping by Britten et al. (1989) shows that the property is underlain by Upper Triassic to Lower Jurassic supracrustal rocks (Figure 4). Most of the property is underlain by Upper Triassic sediments of the Stuhini Group. The western edge of the property is underlain by the Lower Jurassic Unuk River Formation which consists of andesitic volcanics with lesser sediments.

### Unit 1: Stuhini Group (Upper Triassic)

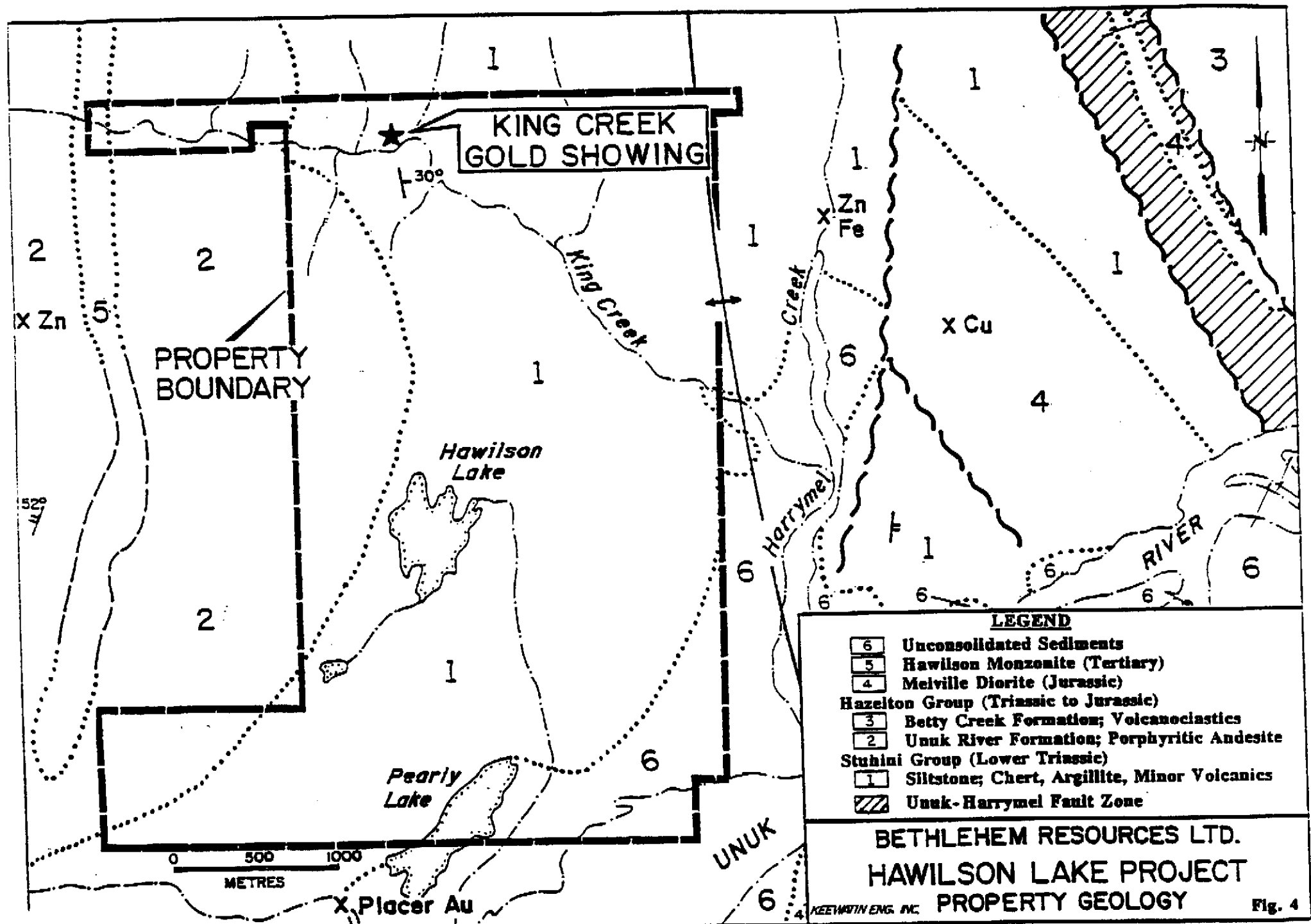
The Stuhini Group rocks occupy the nose of a north-plunging anticline, and occur as a wedge between the Unuk-Harrymel Shear Zone and the overlying Unuk River Formation. These rocks underlie most of the western portion of the property, consisting of thin bedded siltstones, immature fine-grained wackes, chert, impure limestone, and andesitic tuffs that locally attain a considerable thickness. Andesitic tuffs may be laminated to massive, aphanitic or hornblende-feldspathic. Limestones occur as thin beds or discontinuous lenses that show extensive recrystallization and highly disrupted internal structure. Fossil evidence led Britten et al. (1989) to ascribe a Carnian to Norian age to these rocks.

### Unit 2: Unuk River Formation (Upper Triassic to Lower Jurassic)

These Norian to Sinemurian rocks belong to the Unuk River Formation which is the lowermost unit of the Hazelton Group. Britten et al. (1989) described this sequence as green and grey intermediate to mafic volcanoclastics and flows with locally thick interbeds of fine-grained immature sediments. The volcanics are reported to be dominantly massive to poorly bedded plagioclase ( $\pm$  hornblende) porphyritic andesite. The sediments are predominantly grey, brown, and green, thinly bedded tuffaceous siltstone and fine-grained wacke. The basal contact with Triassic strata appears to be near the top of a thick sequence of clastic sedimentary rocks. Neither an angular unconformity nor a widespread conglomerate marks this lower contact. Regional geological government mapping and mapping completed during the 1989 property exploration program indicates this unit underlies the western edge of the property.

### Unit 5: Hawilson Monzonite (Tertiary)

The Jurassic Unuk River Formation volcanics are intruded by an Eocene or older monzonite stock that varies from 150 to 350 m in width and appears to be continuous in a north-south direction for about 6 km. The intrusive is comprised of a light grey, fine-to medium-grained monzonite and is described as a "high level" vertically tabular monzonite body that has apparently been block faulted



KING CREEK  
GOLD SHOWING

PROPERTY  
BOUNDARY

Hawilson  
Lake

Pearly  
Lake

King  
Creek

Harrymel  
Creek

RIVER

UNUK

0 500 1000  
METRES

x Placer Au

**LEGEND**

6	Unconsolidated Sediments
5	Hawilson Monzonite (Tertiary)
4	Melville Diorite (Jurassic)
Hazelton Group (Triassic to Jurassic)	
3	Betty Creek Formation; Volcanoclastics
2	Unuk River Formation; Porphyritic Andesite
Stuhini Group (Lower Triassic)	
1	Siltstone; Chert, Argillite, Minor Volcanics
[Hatched Box]	Unuk-Harrymel Fault Zone

BETHLEHEM RESOURCES LTD.  
HAWILSON LAKE PROJECT  
PROPERTY GEOLOGY

KEEWATIN ENG. INC.

Fig. 4

up into the volcanic sequence. This unit cuts across the western portion of the Achilles 3 and 4 claims, only a small sliver of which is not covered by pre-existing mineral claims.

### Structure

The strata on the property define a broad north-plunging anticline with moderately dipping limbs. Britten et al. (1989) mapped several possible faults to the east of the property boundary. These are assumed to be normal faults and are described as megascopic structures with relatively little offset.

#### 6.2.1 Geology of the King Creek Showing






The King Creek showing is located in the northwestern corner of the property adjacent to the Achilles 4 and Achilles 1 claim boundary. It outcrops along the north bank of King Creek roughly 3.4 kilometres from its confluence with Hawilson Creek to the southeast. The King Creek showing occurs in sedimentary rocks near the stratigraphic top of the Stuhini Group in association with an intermediate feldspar-hornblende porphyry intrusive sill-like body (Figure 5). Anomalous rock samples indicate an area of interest exceeding 200 metres (600 feet) wide, and gossanous exposures observed south across King Creek suggest on strike potential of the zone. The mineralization is hosted within a rusty, gossanous outcrop of contorted and sheared pale green-grey cherts, and siliceous siltstones that display a general north-south strike and moderate easterly dip. Stratigraphically above the cherts 20 to 60 metres to the east, a sequence of dark grey-green wackes, black argillites, grey to black cherts, and a green-grey calcareous heterolithic tuff breccia is intruded by a feldspar to feldspar-hornblende porphyry sill-like body. Adjacent to the porphyry, a halo of pyrite and pyrrhotite pervades all units. The area west of the showing was not examined, but previous samples of cherts and siltstones suggest that this package is fairly thick.

#### 6.2.2 Mineralization

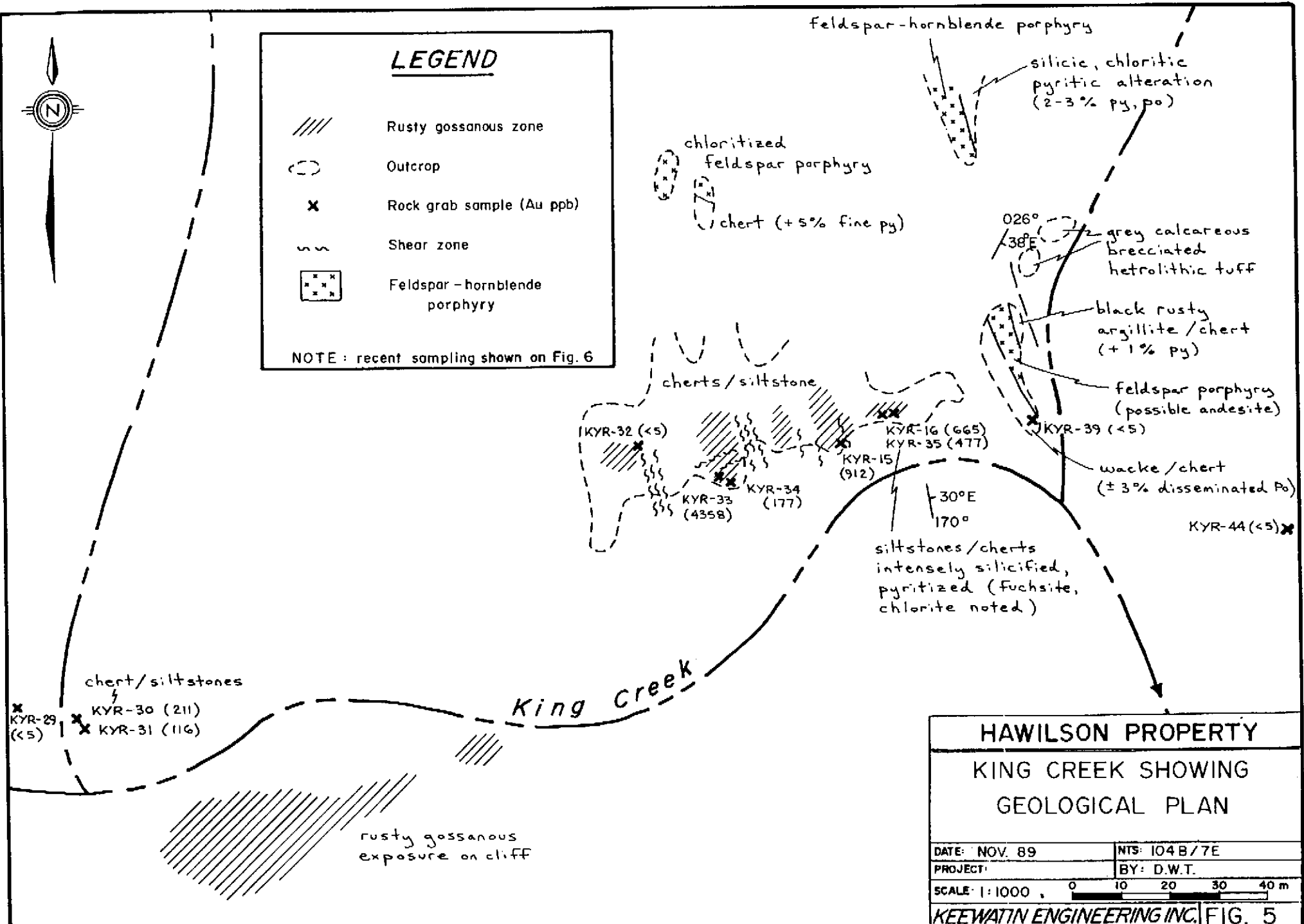
At the site of sample KYR-33 (4,358 ppb Au; 0.127 oz/ton Au; Figure 5) large pods of massive to disseminated pyrite and minor arsenopyrite are associated with two sets of discontinuous, near vertical shear zones that strike roughly  $020^{\circ}$  and  $070^{\circ}$ . The mineralized shears vary in width from 1.0 to 20.0 centimetres within a zone of up to 4 metres across.

At the site of KYR-16 (665 ppb Au), approximately 25 metres east of KSYR-33, semi-massive fine to coarse cubic pyrite, minor fine arsenopyrite and associated fuchsite mica alteration hosted within the chert package suggest lithologically controlled replacement mineralization.


# LEGEND

-  Rusty gossanous zone
-  Outcrop
-  Rock grab sample (Au ppb)
-  Shear zone
-  Feldspar - hornblende porphyry

NOTE: recent sampling shown on Fig. 6



## HAWILSON PROPERTY KING CREEK SHOWING GEOLOGICAL PLAN

DATE: NOV. 89	NTS: 104 B/7E
PROJECT:	BY: D.W.T.
SCALE: 1:1000	
KEEWATIN ENGINEERING INC. FIG. 5	

In the vicinity of the feldspar-hornblende porphyry, the brecciated tuff unit is highly silicified, chloritized and contains 2 to 4% disseminated pyrite. This area has not been well investigated and warrants further examination.

## **7.0 SAMPLING PROGRAM**

The main objective of this examination of the King Creek showing was to obtain representative continuous chip samples across the areas highlighted by earlier sampling. The result was the collection of 20 rock chip samples, 13 rock grab samples and two soil samples. All work was conducted on the Achilles 4 claim.

### **7.1 Sampling and Geochemical Procedures**

Continuous chip samples were collected as near to perpendicular to mineralized structures as possible at all sites. At the site of KYR-33 however, an arcuate pattern of 10 continuous chip samples varying from 0.50 to 2.05 metres in width was collected to best represent the two directions of mineralized shears. Grab samples were taken from the best material observed at the site. The two soils were of red residual B-horizon soil.

All samples were shipped via Greyhound from Smithers to Bondar-Clegg and Company Ltd., 130 Pemberton Avenue, North Vancouver, B.C. for 29 element Induced Coupled Plasma (ICP) analysis plus gold (see Appendix III for a complete list of elements). Extraction was achieved with hot aqua-regia for the ICP, and gold was analyzed by 30 gram sample fire assay with atomic absorption finish.

### **7.2 Discussion of Results**

Results of the examination of the King Creek showing did not return any high grade values, but did verify the results of earlier sampling (Figures 6, 7 and 8). The most notable results were from the area of sample KYR-33, with chip sample 3117C returning 1,738 ppb Au (0.051 oz/ton Au) across 0.50 metres. This sample is noted to have included 15 cm of massive pyrite hosted within a 070° trending shear. This sample was also anomalous in arsenic (865 ppm), silver (6.5 g/t) and lead (640 ppm), with lesser anomalies in copper (348 ppm) and zinc (319 ppm).

# LEGEND



Rusty gossanous outcrop



Rock chip sample location



Rock grab sample location



Soil sample location

3101C

Sample number (G=grab,  
C=chip)

X 3159 G

X 3160 G

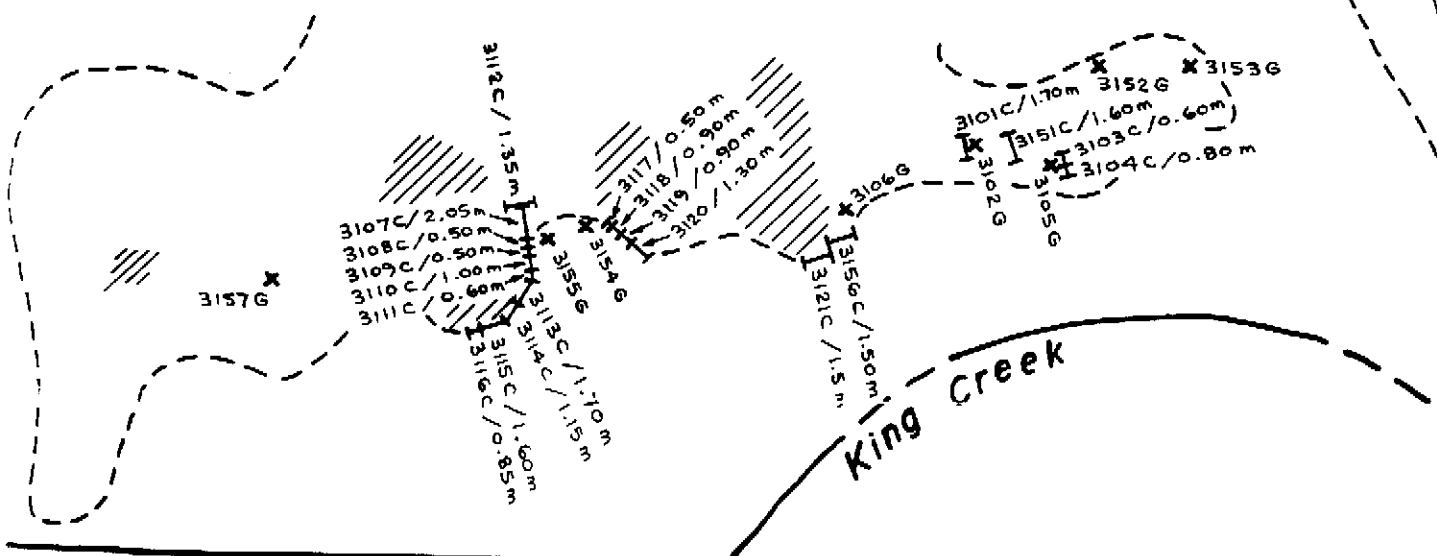
X 3158 G

● 3124 S

X 3125 G

X 3123 G

● 3122 S



<b>HAWILSON PROPERTY</b>	
<b>KING CREEK SHOWING</b>	
<b>SAMPLE LOCATION PLAN</b>	
DATE: NOV. 89	MTS: 1048/7E
PROJECT:	BY: D.W.T.
SCALE: 1:500	0 10 20 m
KEEWATIN ENGINEERING INC. FIG. 6	

# LEGEND



Rusty gossanous outcrop



Rock chip sample location



Rock grab sample location



Soil sample location

Assay values for Au(ppb)  
and Ag(ppm)

x 18,0.9

x <5, <0.2

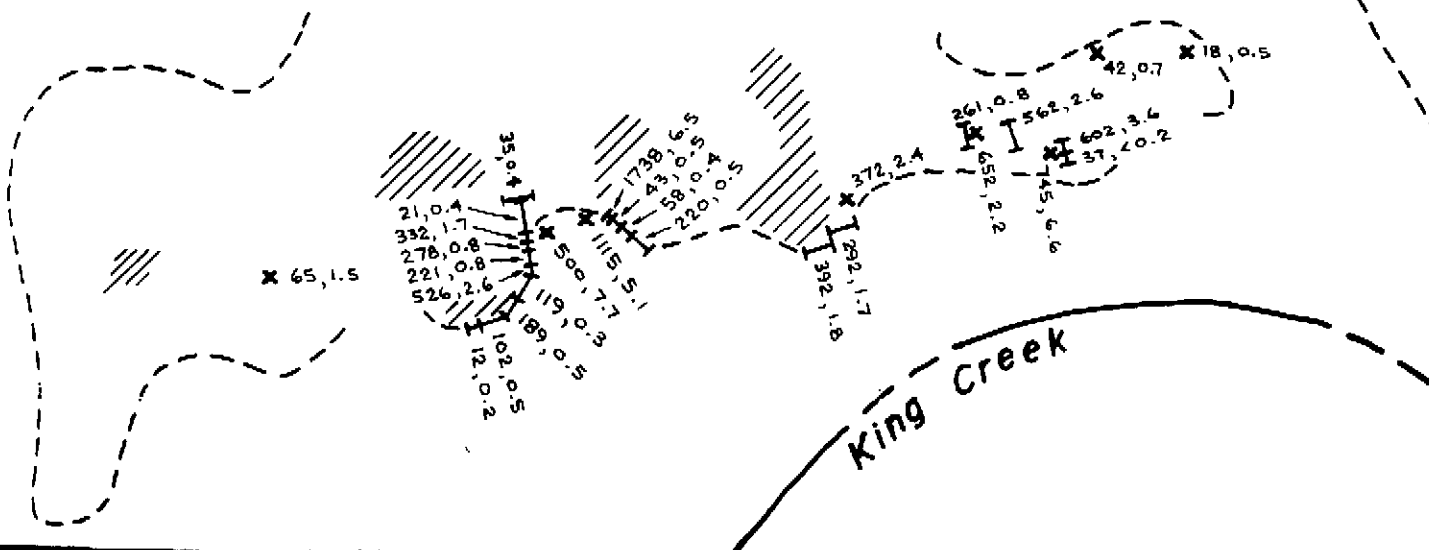
x 11, <0.2

● 16,0.7

x 19,0.3

x 22,0.2





● 30,1.3



<b>HAWILSON PROPERTY</b>	
<b>KING CREEK SHOWING</b>	
<b>Au-Ag ASSAY PLAN</b>	
DATE: NOV. 89	NTS: 1048/7E
PROJECT:	BY: D.W.T.
SCALE: 1:500	0 10 20 m
<b>KEEWATIN ENGINEERING INC. FIG. 7</b>	



**LEGEND**

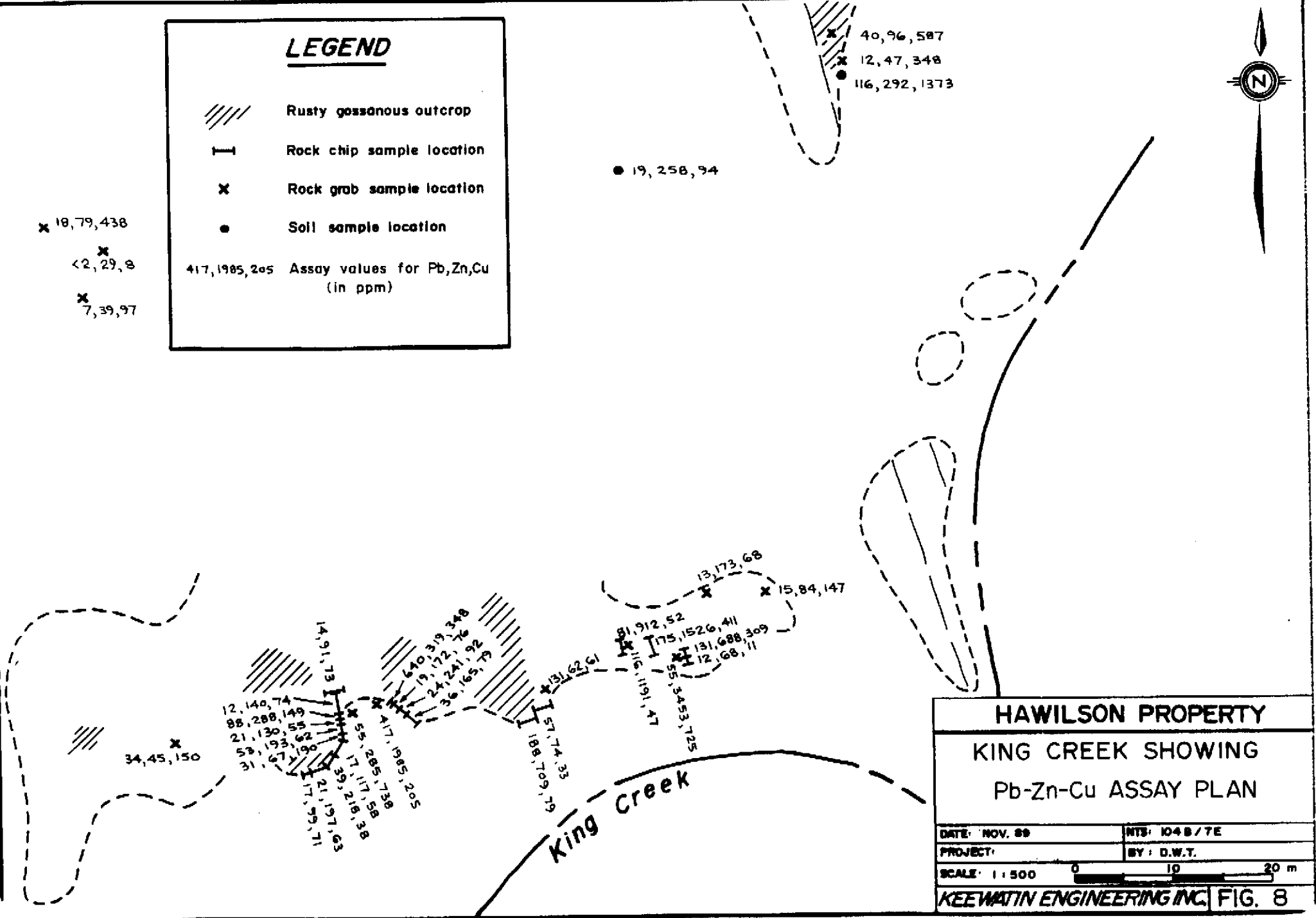
-  Rusty gossanous outcrop
-  Rock chip sample location
-  Rock grab sample location
-  Soil sample location

417,1985,205 Assay values for Pb,Zn,Cu (in ppm)

x 18,79,438  
 x <2,29,8  
 x 7,39,97

x 40,96,587  
 x 12,47,348  
 ● 116,292,1373

● 19,258,94



<b>HAWILSON PROPERTY</b>	
<b>KING CREEK SHOWING</b>	
<b>Pb-Zn-Cu ASSAY PLAN</b>	
DATE: NOV. 89	NTS: 1048/7E
PROJECT:	BY: D.W.T.
SCALE: 1:500	0 10 20 m
<b>KEEWATIN ENGINEERING INC. FIG. 8</b>	

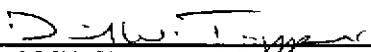
Samples from the western exposure of the showing area (site of sample KYR-16) returned significantly higher values in zinc with grab sample 3105G returning 0.35% Zn, as well as anomalous copper (725 ppm) and gold (745 ppb Au; 0.022 oz/ton Au).

Samples taken in altered rocks adjacent to the feldspar-hornblende porphyry returned low values in gold, but significant copper values (grab sample 3122G: 587 ppm Cu; soil sample 3122S: 1,373 ppm Cu). For a complete list of results refer to Appendix III.

## 8.0 CONCLUSIONS AND RECOMMENDATIONS

The gold mineralization found at the King Creek Showing suggests that a property scale mineral system could exist in the area. The presence of iron-sulphide associated gossans and calcareous host rocks in spacial association with an intermediate feldspar-hornblende intrusion strongly supports this possibility. Gold values are to date low grade, but are consistent and are derived from a broad area that has not been fully investigated. Multi-element associations with high gold values of lead, zinc, silver, arsenic, copper, barium, strontium and vanadium, and good soil development in the area, make this an ideal target for a grid controlled soil and rock geochemical survey. The steep canyons of King Creek would create some obstacles, but the general terrain is amenable to such a program.

Respectfully submitted,

  
\_\_\_\_\_  
David W. Tupper, B.Sc.

## 9.0 BIBLIOGRAPHY

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**APPENDIX I**

**Statement of Costs**

## STATEMENT OF COSTS

### Pre-Field

Project logistics, map preparation, crew and material supply \$ 274.00

### Personnel

D.G. DuPre, Project Supervisor	1 day @ \$425/day	\$ 425.00	
D.W. Tupper, Project Geologist (November 3-6, 1989)	4 days @ \$350/day	1,400.00	
B. MacIntyre, Senior Prospector (November 3-6, 1989)	4 days @ \$275/day	<u>1,100.00</u>	\$ 2,925.00

### Camp Support

Accommodation, food	\$ 616.68	
Telephone, radios	54.44	
Disposable supplies	51.96	
Other (film, developing, rock sample cutting)	<u>57.50</u>	\$ 780.58

### Transportation

Airfare	\$ 905.60	
Helicopter	4,021.75	
Car Rental	402.66	
Gas	32.00	
Taxi fare	<u>67.00</u>	\$ 5,429.01

### Geochemical Analysis

Sample preparation and analysis for 35 samples \$ 615.95

### Post-Field

Data compilation, report writing, copies \$ 2,480.00

**TOTAL: \$12,514.54**

**APPENDIX II**

**Statement of Qualifications**


## STATEMENT OF QUALIFICATIONS

I, DAVID W. TUPPER, of 1047 Leyland Street, West Vancouver, British Columbia, do hereby certify that:

1. I am a consulting geologist.
2. I was under subcontract to Keewatin Engineering Inc. of 800 - 900 West Hastings Street, Vancouver, B.C. for the duration of time I worked on this project.
3. I worked on the Hawilson Property November 4 and 5, 1989.
4. I am a graduate of the University of British Columbia (1985) with a Bachelor of Science degree.
5. I have practised my profession continuously since graduation, largely on a contractual basis.
6. I have been employed in mineral exploration since 1979.
7. I have no interest, neither direct nor indirect in the properties or securities of Bethlehem Resources Corp., nor do I expect to acquire any such interest.

Dated at Vancouver British Columbia this 11th day of December, 1989.

Respectfully submitted,

  
\_\_\_\_\_  
David W. Tupper, B.Sc.,

**APPENDIX III**

**Assay Certificates**

Legend to Sample Numbers

3101	sample no.
C	continuous chip sample
G	grab sample
S	soil sample



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SAMPLE NUMBER	ELEMENT UNITS	Au 30g PPB	Ag PPM	As PPM	Ba PPM	Be PPM	Bi PPM	Cd PPM	Ce PPM	Co PPM	Cr PPM	Cu PPM
S1 3123		30	1.3	153	183	<0.5	3	2	21	122	17	1373
S1 3124		16	0.7	175	108	<0.5	6	<1	29	17	69	94
R2 3101		261	0.8	142	130	<0.5	7	9	16	5	101	52
R2 3102		652	2.2	463	36	<0.5	13	14	8	9	66	47
R2 3103		602	3.6	376	49	<0.5	6	7	8	25	113	309
R2 3104		37	<0.2	41	112	<0.5	<2	<1	12	2	125	11
R2 3105		745	6.6	398	8	<0.5	<2	35	<5	58	84	725
R2 3106		372	2.4	238	47	<0.5	6	<1	<5	8	114	61
R2 3107		21	0.4	41	325	<0.5	5	<1	9	7	145	74
R2 3108		322	1.7	213	289	<0.5	5	4	9	7	108	149
R2 3109		278	0.8	203	196	<0.5	5	<1	8	7	81	55
R2 3110		221	0.8	205	204	<0.5	5	2	9	8	113	62
R2 3111		526	2.6	344	68	<0.5	9	<1	5	13	95	190
R2 3112		35	0.4	66	202	<0.5	5	<1	11	10	133	73
R2 3113		119	0.3	114	256	<0.5	4	1	11	5	105	58
R2 3114		189	0.5	136	162	<0.5	7	2	7	4	135	38
R2 3115		102	0.5	105	191	<0.5	7	1	11	7	56	63
R2 3116		12	0.2	90	206	<0.5	6	<1	10	6	106	71
R2 3117		1738	6.5	865	61	<0.5	9	3	6	10	78	348
R2 3118		43	0.5	86	146	<0.5	6	1	7	8	120	76
R2 3119		58	0.4	90	225	<0.5	3	2	11	6	137	97
R2 3120		220	0.5	106	149	<0.5	5	1	8	7	108	79
R2 3121		392	1.8	251	60	<0.5	9	7	<5	5	118	79
R2 3122		22	0.2	32	122	<0.5	9	<1	<5	36	125	348
R2 3125		9	0.3	38	50	<0.5	7	<1	18	30	79	587
R2 3151		562	2.6	296	43	<0.5	12	15	10	33	45	411
R2 3152		42	0.7	123	113	<0.5	15	<1	44	31	11	68
R2 3153		18	0.5	80	252	<0.5	7	<1	6	16	45	147
R2 3154		1115	5.1	556	45	<0.5	8	22	6	12	39	205
R2 3155		500	7.7	863	19	<0.5	6	1	<5	36	22	738
R2 3156		292	1.7	183	145	<0.5	7	<1	7	4	88	33
R2 3157		65	1.5	146	72	<0.5	9	<1	<5	16	46	150
R2 3158		11	<0.2	25	163	<0.5	6	<1	15	11	42	97
R2 3159		18	0.9	33	32	<0.5	6	<1	10	13	111	438
R2 3160		<5	<0.2	17	1588	<0.5	8	<1	12	6	23	8

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SAMPLE NUMBER	ELEMENT UNITS	Fe PCT	Ga PPM	La PPM	Li PPM	Mn PPM	Mo PPM	Ni PPM	Pb PPM	Rb PPM	Sb PPM	Sn PPM
S1 3122		>10.00	10	7	5	1215	8	213	116	91	21	<20
S1 3124		9.60	11	3	12	462	16	53	19	31	26	<20
R2 3101		3.35	17	6	8	1859	48	38	81	<20	14	<20
R2 3102		9.47	17	<1	5	4480	19	25	116	<20	28	<20
R2 3103		9.30	10	<1	3	1343	63	51	131	85	24	<20
R2 3104		1.05	13	4	3	1025	9	16	12	50	7	<20
R2 3105		>10.00	4	<1	3	2003	37	48	55	23	43	<20
R2 3106		>10.00	3	<1	1	119	69	35	131	<20	22	<20
R2 3107		2.31	17	4	9	546	14	31	12	<20	10	<20
R2 3108		3.50	17	2	6	1016	18	27	88	<20	16	<20
R2 3109		1.97	14	3	3	356	23	40	21	<20	12	<20
R2 3110		2.57	16	3	3	457	33	33	53	<20	14	<20
R2 3111		7.51	13	<1	3	372	17	18	31	<20	23	<20
R2 3112		3.07	14	4	6	345	16	28	14	<20	10	<20
R2 3113		2.13	18	5	8	988	8	19	17	<20	14	<20
R2 3114		2.29	17	3	3	433	13	18	39	<20	13	<20
R2 3115		2.74	8	5	8	1948	11	20	21	<20	16	<20
R2 3116		2.16	19	4	9	671	14	19	17	<20	14	<20
R2 3117		8.13	13	<1	4	430	36	32	640	<20	34	<20
R2 3118		2.62	16	3	6	395	16	29	19	<20	12	<20
R2 3119		1.85	15	6	5	431	13	21	24	<20	10	<20
R2 3120		2.37	15	4	7	367	12	20	36	<20	11	<20
R2 3121		7.48	14	<1	5	824	36	15	188	<20	25	<20
R2 3122		4.58	20	<1	8	275	5	135	12	<20	12	<20
R2 3125		4.10	13	7	4	217	7	122	40	<20	12	<20
R2 3151		>10.00	13	<1	6	1763	54	178	175	<20	31	<20
R2 3152		8.46	25	18	17	858	4	16	13	<20	25	<20
R2 3153		5.19	19	<1	14	437	6	35	15	<20	15	<20
R2 3154		>10.00	11	<1	4	1101	34	23	417	<20	41	<20
R2 3155		>10.00	9	<1	7	1183	21	38	55	<20	34	<20
R2 3156		4.10	18	1	4	1358	24	18	57	<20	18	<20
R2 3157		8.27	9	<1	5	192	43	28	34	<20	25	<20
R2 3158		3.79	21	7	8	570	8	11	7	<20	14	<20
R2 3159		2.72	17	7	3	135	22	44	18	<20	9	<20
R2 3160		3.19	19	6	8	608	1	4	<2	<20	8	<20



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SAMPLE NUMBER	ELEMENT UNITS	Sr PPM	Ta PPM	Te PPM	V PPM	W PPM	Y PPM	Zn PPM	Zr PPM
S1 3122		38	<10	<10	18	<10	17	292	6
S1 3124		4	<10	<10	154	<10	10	258	107
R2 3101		111	<10	<10	231	<10	15	912	5
R2 3102		139	<10	<10	140	<10	12	1191	2
R2 3103		102	<10	<10	190	<10	9	688	5
R2 3104		111	<10	<10	34	<10	9	68	2
R2 3105		59	<10	<10	72	<10	4	3453	3
R2 3106		11	<10	<10	28	<10	3	62	1
R2 3107		44	<10	<10	118	<10	13	140	3
R2 3108		55	<10	<10	80	<10	10	288	2
R2 3109		34	<10	<10	96	<10	7	130	2
R2 3110		49	<10	<10	69	<10	13	193	2
R2 3111		48	<10	<10	67	<10	12	67	3
R2 3112		31	<10	<10	107	<10	12	91	2
R2 3113		104	<10	<10	50	<10	13	117	1
R2 3114		49	<10	<10	40	<10	9	218	1
R2 3115		206	<10	<10	33	<10	15	197	1
R2 3116		64	<10	<10	47	<10	9	99	1
R2 3117		31	<10	<10	44	<10	11	319	2
R2 3118		31	<10	<10	67	<10	12	172	3
R2 3119		43	<10	<10	61	<10	16	241	2
R2 3120		31	<10	<10	84	<10	11	165	2
R2 3121		54	<10	<10	30	<10	6	709	<1
R2 3122		77	<10	<10	41	<10	7	47	22
R2 3125		70	<10	<10	22	<10	11	96	26
R2 3151		147	<10	<10	237	<10	13	1526	5
R2 3152		95	<10	11	50	<10	15	173	2
R2 3153		30	<10	<10	53	<10	10	84	<1
R2 3154		79	<10	<10	57	<10	10	1985	2
R2 3155		40	<10	<10	173	<10	9	285	2
R2 3156		116	<10	<10	55	<10	9	74	2
R2 3157		13	<10	<10	20	<10	4	45	2
R2 3158		50	<10	<10	133	<10	9	39	8
R2 3159		57	<10	<10	45	<10	12	79	12
R2 3160		121	<10	<10	99	<10	8	29	5

HAWILSON LAKE PROJ.

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

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	SAMPLE NUMBER	width	ELEMENT UNITS	Au 30g PPB	Hg PPM	As PPM	Ba PPM	Cu PPM	Ni PPM	Pb PPM	Zn PPM	Fe PCT	Sr PPM
	S1 3122 S			30	1.3	153	183	1373	213	116	292	>10.00	38
	S1 3124 S			16	0.7	175	108	94	53	19	258	9.60	4
Zone D	R2 3101 C/1.70m			261	0.8	142	100	52	38	81	912	3.35	111
	R2 3102 G		(0.019)	652	2.2	463	36	47	25	116	1191	9.47	139
	R2 3103 C/0.60m		(0.018)	602	3.6	376	49	309	51	131	688	9.30	102
	R2 3104 C/0.80m			37	<0.2	41	112	11	16	12	68	1.05	111
Zone C	R2 3105 G		(0.022)	745	6.6	398	8	725	48	55	3453	>10.00	59
	R2 3106 G		(0.011)	372	2.4	238	47	61	35	131	62	>10.00	11
	R2 3107 C/2.05m			21	0.4	41	325	74	31	12	140	2.31	44
	R2 3108 C/0.50m			322	1.7	213	289	149	27	88	288	3.50	55
Zone A	R2 3109 C/0.50m			278	0.8	203	196	55	40	21	130	1.97	34
	R2 3110 C/1.00m			221	0.8	205	204	62	33	53	193	2.57	49
	R2 3111 C/0.60m		(0.015)	526	2.6	344	68	190	18	31	67	7.51	48
	R2 3112 C/1.35m			35	0.4	66	202	73	28	14	91	3.07	31
	R2 3113 C/1.70m			119	0.3	114	256	58	19	17	117	2.13	104
Zone B	R2 3114 C/1.15m			189	0.5	136	162	38	18	39	218	2.29	49
	R2 3115 C/1.60m			102	0.5	105	191	63	20	21	197	2.74	206
	R2 3116 C/0.85m			12	0.2	90	206	71	19	17	99	2.16	64
	R2 3117 C/0.50m		(0.051)	1738	6.5	865	61	348	32	640	319	8.13	31
	R2 3118 C/0.90m			43	0.5	86	146	76	29	19	172	2.62	31
Zone C	R2 3119 C/0.90m			58	0.4	90	225	92	21	24	241	1.85	43
	R2 3120 C/1.30m			220	0.5	106	149	79	20	36	165	2.37	31
	R2 3121 C/1.5m		(0.011)	392	1.8	251	60	79	15	188	709	7.48	54
	R2 3122 G			22	0.2	32	122	348	135	12	47	6.58	77
	R2 3125 G			9	0.3	38	50	587	122	40	96	4.10	70
Zone D	R2 3151 C/1.60m		(0.016)	562	2.6	296	43	411	178	175	1526	>10.00	147
	R2 3152 G			42	0.7	123	117	68	16	13	173	8.46	95
	R2 3153 G			18	0.5	80	252	147	35	15	84	5.19	30
Zone A	R2 3154 G		(0.032)	1115	5.1	556	45	205	23	417	1985	>10.00	79
	R2 3155 G		(0.014)	500	7.7	863	19	738	38	55	285	>10.00	40
Zone C	R2 3156 C/1.50m			292	1.7	183	145	33	18	57	74	4.10	116
	R2 3157 G			65	1.5	146	72	150	28	34	45	8.27	13
	R2 3158 G			11	<0.2	25	163	97	11	7	39	3.79	50
	R2 3159 G			18	0.9	33	32	438	44	18	79	2.72	57
	R2 3160 G			<5	<0.2	17	1588	8	4	<2	29	3.19	121

- Analysis: Auby F.A with A.A. finish; other 29 by I.C.P.  
 - sample width reported in metres.  
 - Au in o.p.t. shown in brackets.  
 - refer to map for location of samples and Zones

C = chip.  
 G = grab  
 S = soil.

Bondar-Clegg & Company Ltd.  
 130 Pemberton Ave.  
 North Vancouver, B.C.  
 V7P 2R5  
 (604) 985-0681 Telex 04-352667



Geochemical  
 Lab Report

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

REPORT: V89-07960.0 ( COMPLETE )

REFERENCE INFO:

CLIENT: KEEMATIN ENGINEERING INC.  
 PROJECT: ACHILLES

SUBMITTED BY: D. TUPPER  
 DATE PRINTED: 22-NOV-89

ORDER	ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Au 30g Gold 30 grams	35	5 PPB	FIRE-ASSAY	Fire Assay AA
2	Ag Silver	35	0.2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
3	As Arsenic	35	5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
4	Ba Barium	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
5	Be Beryllium	35	0.5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
6	Bi Bismuth	35	2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
7	Cd Cadmium	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
8	Ce Cerium	35	5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
9	Co Cobalt	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
10	Cr Chromium	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
11	Cu Copper	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
12	Fe Iron	35	0.05 PCT	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
13	Ga Gallium	35	2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
14	La Lanthanum	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
15	Li Lithium	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
16	Mn Manganese	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
17	Mo Molybdenum	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
18	Ni Nickel	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
19	Pb Lead	35	2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
20	Rb Rubidium	35	20 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
21	Sb Antimony	35	5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
22	Sn Tin	35	20 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
23	Sr Strontium	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
24	Ta Tantalum	35	10 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
25	Te Tellurium	35	10 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
26	V Vanadium	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
27	W Tungsten	35	10 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
28	Y Yttrium	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
29	Zn Zinc	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
30	Zr Zirconium	35	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma