GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE

CHARLOTTE 3 MINERAL CLAIM

Skeena Mining Division, British Columbia

N.T.S. 104-B/7E
Latitude 56° 30' North
Longitude 130° 35' West

on behalf of

CANADIAN INDUSTRIAL MINERALS CORP.
Vancouver, B.C.

by

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TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF TABLES

LIST OF FIGURES

LIST OF MAPS

SUMMARY

The property consists of the Charlotte 3 mineral claim, staked under the modified-grid system, totalling 18 units and is located approximately 80 km northwest of Stewart, British Columbia. Access to the property is by fixed-wing aircraft from Terrace, Stewart, or Smithers to various airstrips in the area and then via helicopter to the property.

The property is situated within the Intermontaine Tectono-Stratigraphic Belt, near the contact between the Stikine Terrane and the unmetamorphosed sediments of the Bowser Basin. The property is underlain by an assemblage of northerly striking interbedded argillite, chert, quartzite and siltstone of the Upper Triassic Stuhini Group.

The area has an exploration history dating back to the turn of the century 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 Exploration Ltd. which was brought into production in mid-1988. The adjacent SNIP property is slated for production in 1991.

At this time, the Eskay Creek property, located 20 km northeast of the Charlotte 3 claim and currently being explored by Corona and Placer-Dome, is the most significant deposit in the area. The property comprises at least eight mineralized zones occurring over a strike length of 1800 m within a sequence of felsic volcanics. The mineralization is associated with disseminated sulphides in felsic volcanic breccias and graphitic argillites in contact with overlying intermediate volcanic rocks.

A review of the available information indicates that no work has been filed prior to 1989 for the specific area now covered by the Charlotte 3 mineral claim.

The 1989 exploration program consisted of helicopter-supported reconnaissance prospecting, geological mapping and geochemical sampling with the objective of evaluating the property's potential for hosting economic precious metals deposits. Brecciated chert containing a stockwork of quartz stringers was located in the west-central portion of the claim, however, lithogeochemical samples collected from the property did not yield any anomalous geochemical values. Two samples of highly fractured and sheared black argillite yielded weakly elevated Au and As values. Stream silt samples collected along the creek draining this area yielded elevated Ag, As, and/or Zn values. Heavy

mineral samples were collected from creeks draining the western portion of the property, and yielded elevated Ag, Cu and Zn values. One sample yielded an anomalous gold value of 3847 ppb.

The 1990 exploration program consisted of helicopter-supported geological mapping, stream silt geochemistry and contour soil sampling with the objective of evaluating the property's economic potential. A total of three rock samples, 10 soil samples and 66 stream silt samples were collected. One area of moderate gold-in-soil values occurs near the headwaters of a drainage in the western sector of the Charlotte 3 property. This area is on strike, structurally, with the King Creek sulphide showing on the contiguous Achilles 4 claim to the south. Stream silt values up to 188 ppb Au and a gold-in-soil value of 47 ppb Au are recorded suggesting that mineralization may occur along strike of the fault zones which influence promising mineralization on the Achilles property. A correlation between elevated Au, As, Hg and Pb values in silt samples seems apparent and evidence suggests these values to be coincident with fault zones characterized by alteration and brecciation. A continued program of contour soil sampling, stream silt sampling and mapping is recommended.

INTRODUCTION

Canadian Industrial Minerals Corp. of Vancouver, British Columbia, commissioned Keewatin Engineering Inc. to conduct a field exploration program on the Charlotte 3 mineral claim in the Unuk River area of northern British Columbia. Exploration was directed by Keewatin Engineering Inc. and crews were based out of the "Doc" camp, situated approximately 19 kilometres southeast of the Charlotte property, on the South Unuk River.

The objective of this program was to evaluate the property's economic potential through follow-up exploration of geochemical anomalies delineated by the 1989 program.

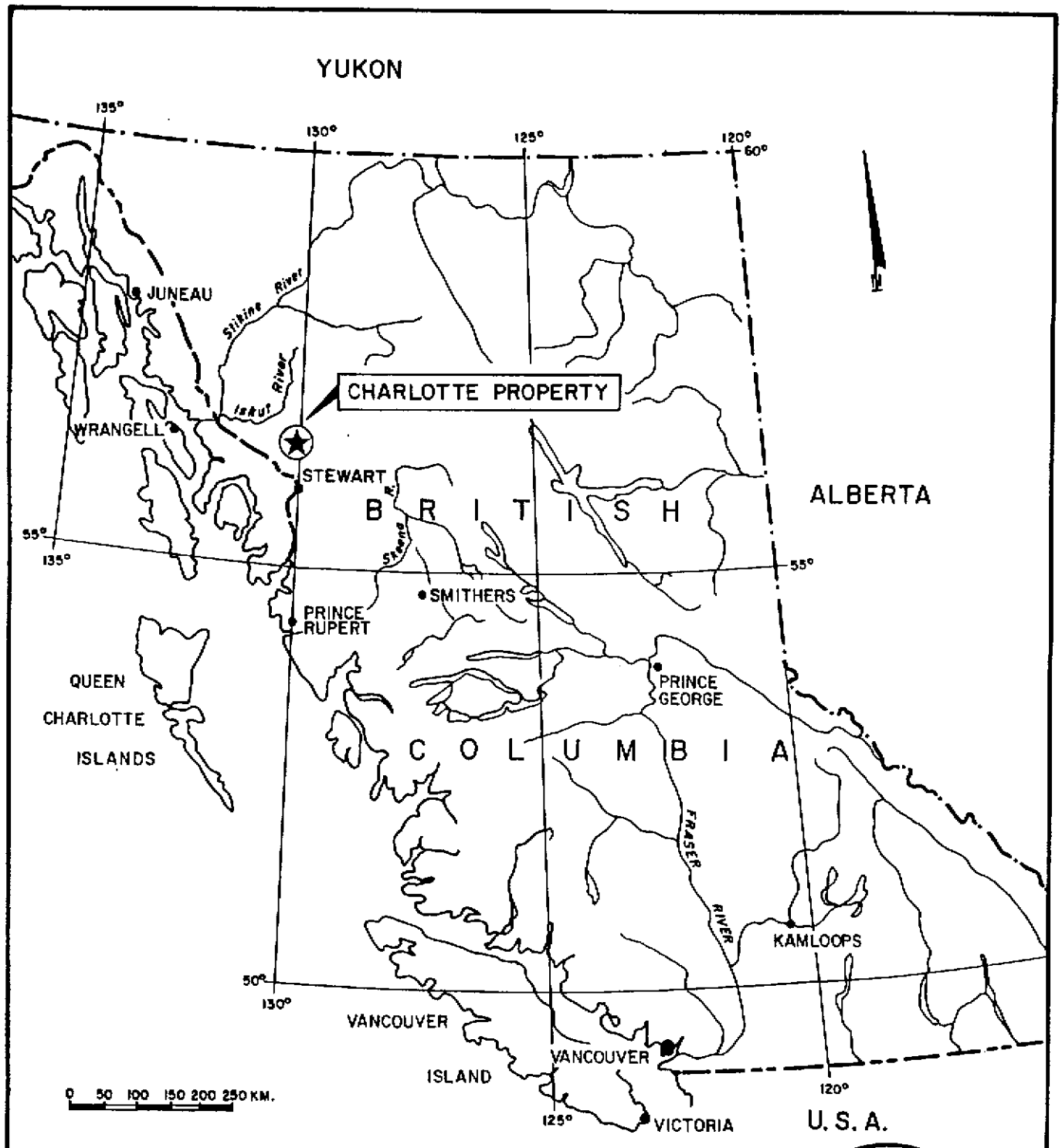
The 1990 program was conducted during the period of September 22-28, 1990 and included geological mapping, stream silt sampling, contour soil sampling and minor lithogeochemical sampling. Sixty-six silt samples were collected at 50 metre intervals from the two south-flowing drainages near the western boundary of the property. In addition, 10 contour soil samples and three rock grab samples were collected from the same area. Geological and geochemical data were compiled on 1:10,000 scale contour maps.

Geochemical samples were shipped to Bondar-Clegg and Company Ltd. in North Vancouver for ICP geochemical analysis for Au, Ag, As, Sb, Cu, Pb, Zn, Hg and Mo. Analytical procedures are described in Appendix III and analytical results are presented in Appendix IV.

Location and Access

The Charlotte 3 mineral claim is located in northwestern British Columbia, approximately 80 km northwest of Stewart (Figure 1). The claims are situated within N.T.S. map-sheet 104-B/7E and centred about 56°30' North latitude and 130°35' West longitude. Access to the property is by fixed-wing aircraft from Terrace, Stewart, or Smithers to various airstrips in the area and then via helicopter to the property. The claims can also be directly accessed by helicopter from Stewart.

In the fall of 1991, a 72 kilometre road over the mountains is scheduled to open, connecting the Eskay Creek area with the main Stewart-Cassiar Highway.



PROPERTY LOCATION MAP

Figure 1

Keewatin Engineering Inc.

KEEWATIN ENGINEERING INC.

GEOLOGICAL ASSOCIATION OF CANADA
G. L. WESA
FELLOW

Physiography and Climate

The Charlotte 3 mineral claim is situated within the Coast Range Physiographic Division and is characterized by northern rain forests and sub-alpine plateaux. Elevations (see Figure 2) range from 215 m in the valley of Harrymel Creek to 1100 m in the northern part of the property.

A transitional treeline, characterized by dense sub-alpine scrub, meanders through the property at approximately the 915 m elevation. Terrain above treeline is typified by intermontaine alpine flora. Conifers up to 30 m tall are common below treeline, especially in stream valleys. Water for camp and drilling purposes is generally in good supply from the numerous creeks draining the claim area.

Precipitation is heavy, exceeding 200 cm per annum, with short mild summers but very wet spring and fall periods. Thick accumulations of snow are common during winter. It is seldom possible to begin surface geological work before July and difficult to continue past September.

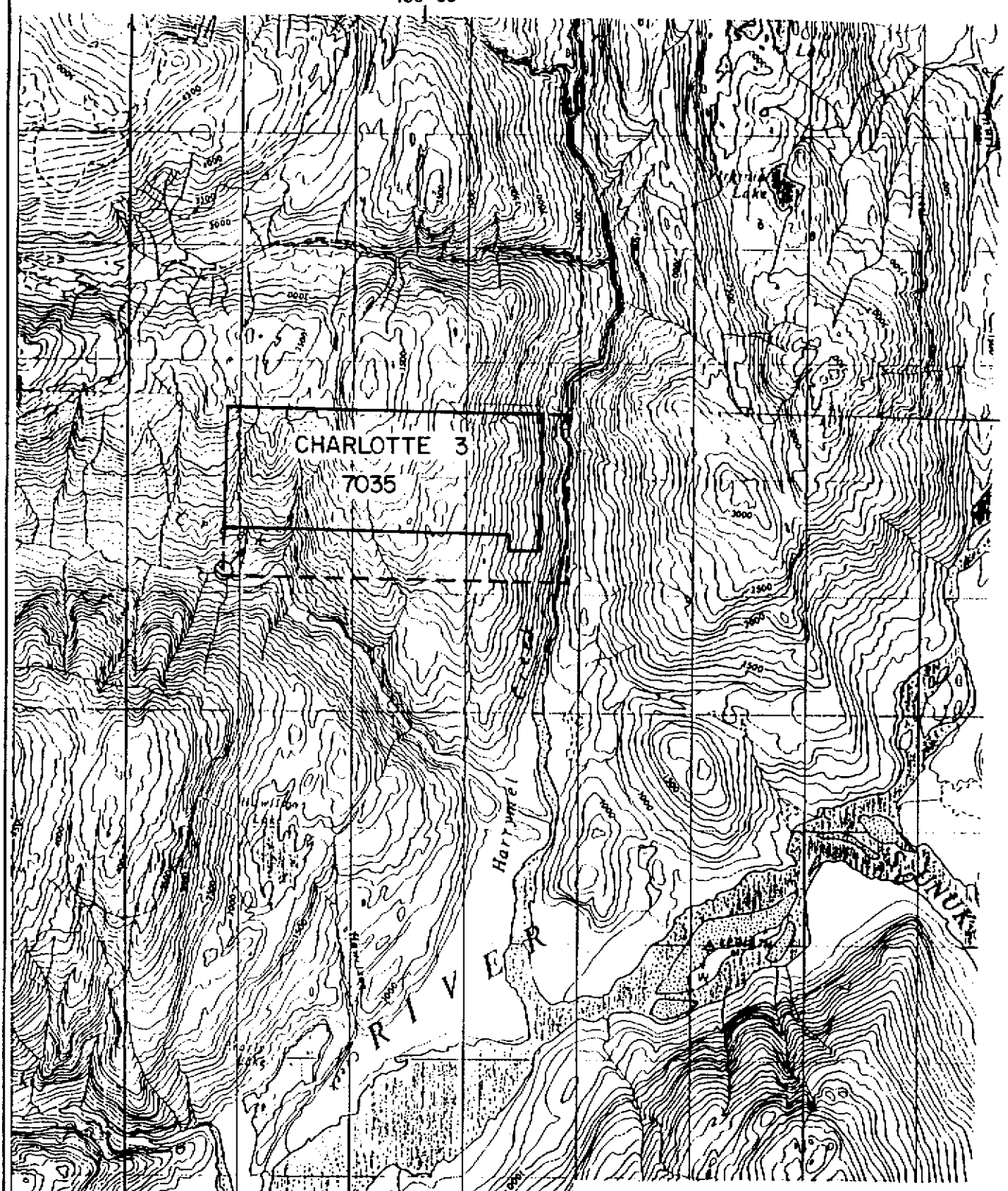
Property Status and Ownership

The property consists of the Charlotte 3 mineral claim (Figure 2) staked under the modified grid system. The claim consists of 18 units, and is located within the Skeena Mining Division. Relevant claim data are tabulated below in Table 1.

Table 1
Charlotte 3 Claim - Claim Status

Claim Name	Record No.	No. of Units	Date of Record	Expiry Date
Charlotte 3	7035	18	December 5, 1988	1995

These claims are apparently the subject of an agreement between the claim holder (G. N. Ross) and Canadian Industrial Minerals Corp.



CANADIAN INDUSTRIAL MINERALS CORPORATION

CHARLOTTE 3

CLAIM MAP

DATE: Nov. 1990	NTS: 104 B/7
PROJECT: 332	PROJ. GEOL.: G. Wesa
SCALE: 1:50000	
Keewatin Engineering Inc.	MAP No. 2

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The claim records and maps show that the southern and eastern edges of the claim overlap pre-existing mineral claims. The Charlotte 3 L.C.P. is located south of the property's western claim boundary in the King Creek drainage, however, this post was not observed during this property examination.

HISTORY OF EXPLORATION

Regional 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.

Exploration to the north of Stewart in the late 1920's and early 1930's resulted in the discovery of mineralization in the vicinity of the Eskay Creek, Summit Lake and East Gold occurrences. Activity was relatively intermittent until the 1950's copper "boom" when the Granduc and Galore Creek deposits were discovered. Much of the area underwent preliminary prospecting during the 1950's and 1960's. Numerous showings and prospects were documented but the inaccessibility of the region and low metal prices resulted in limited exploration activity.

In the 1970's, the porphyry copper boom again brought prospectors and companies into the area. With the dramatic increase in precious metal prices in 1979, all prospects and former producers in the region were re-evaluated. Exploration programs focusing on potential high grade gold and silver deposits were initiated. Approximately $140 million in exploration expenditures have been spent in the region over the last ten years. Subsequent to 1986, total annual expenditures have averaged between $25 to $40 million. These expenditures have pushed several prospects to the advanced stage and resulted in the discovery of over 100 new mineralized occurrences. The advanced projects include the SNIP (Cominco-Prime), Eskay Creek (Corona-Placer-Dome), SB (Tenajon-Westmin) and Sulphurets (Newhawk-Granduc) deposits. Skyline Gold's Johnny Mountain deposit and Westmin/Pioneer/Canacord's Silbak-Premier and Big Missouri deposits went into production during the late 1980's. The exploration activity has been extended north of the Iskut River where numerous gold occurrences have been reported. The most prominent include the McLymont Creek (Gulf International), Iskut J.V. (American Ore-Golden Band-Prime), KRL (Kestral) and Forrest (Avondale) properties. Major exploration programs on these properties were conducted in 1990 and the SNIP property is scheduled for production in 1991.

The 1988 discovery of the Eskay Creek gold-silver-zinc-lead deposit demonstrates the area's potential to host world class deposits.

The recent high level of exploration activity in the area led to federal-provincial government geological mapping programs which began in 1986. These programs will continue in the 1990's.

The Unuk River area was covered by geological mapping in 1988 as part of the Iskut-Sulphurets project conducted by the B.C. Ministry of Energy, Mines and Petroleum Resources (Britton et al., 1989). The entire NTS 104B map sheet 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). Britton et al. (1989) reported that almost every known precious metal prospect in the Unuk River area is associated with high stream gold values. Known gold occurrences are also associated with high but variable values for such pathfinder elements as silver, arsenic, antimony and barium. None of these samples were collected from the area of the Charlotte 3 claim.

Property History

A review of the material in the B.C. Ministry of Energy, Mines and Petroleum Resources assessment report archives indicates that no work has been filed previous to 1989 for the specific area now covered by the Charlotte 3 claim. However, these files do show that the entire Unuk River area was subjected to reconnaissance geological mapping and prospecting by Newmont Mines Ltd. during the period 1959 to 1962. This work did not discover any promising showings or prospects on the present-day property. The assessment records (Korenic, 1982) indicate that Duval Corp. undertook a regional heavy mineral survey in the Unuk River area in 1981.

1989 Exploration Program

The 1989 property exploration program, completed between September 9 and October 16, consisted of helicopter-supported reconnaissance prospecting, geological mapping and geochemistry (lithogeochemical, stream silt, and heavy mineral sampling). Reconnaissance prospecting and geochemical sampling were concentrated in the upland areas and in the drainage courses of the claim, where rock exposures were most abundant.

Brecciated chert containing a stockwork of quartz stringers was located in the west-central portion of the claim, however, lithogeochemical samples in the area did not yield anomalous results. One sample (KCR-028), located directly east of this area, yielded an elevated strontium (721 ppm Sr) value.

Two samples of highly fractured and sheared black argillite yielded weakly elevated Au and As (KCR-026: 105 ppb Au, 359 ppm As; KVR-055: 85 ppb Au, 169 ppm As). Three samples of grey quartzite yielded weakly elevated strontium (KER-80: 103 ppm; KER-81: 138 ppm; KPR-82: 144 ppm) values.

Six stream silt samples were collected from streams crossed during reconnaissance prospecting traverses. Four of these were from the creek draining an area of brecciation and quartz stockwork development. All of the samples yielded elevated silver and/or arsenic values and weakly elevated zinc values. The designation of anomalous values was based on regional G.S.C. survey results in Open File 1645 combined with a subjective interpretation of data obtained during the 1989 exploration on a number of claim groups in the Unuk River Area.

	Ag ppm	As ppm	Zn ppm
KCL-31	1.5	83	457
KVL-13	0.7	122	327
KVL-14	1.6	69	452
KVL-15	1.2	55	361

Sample KZL-32, from the east-central portion of the claim, yielded an elevated gold (99 ppb) value.

Heavy mineral samples were collected from parts of a creek where there is a sudden transition from high to low energy; if present, moss mats were used. The samples were sieved to -20 mesh and a 3 to 5 kg sample of sieved material was collected.

Heavy mineral sampling is a good first-pass tool and should be considered as a micro-prospecting technique. Two heavy mineral samples were collected directly south of the claim boundary, from creeks draining the western portion of the property. Sample KWH-32, from a creek paralleling the western claim boundary, yielded elevated to anomalous values for Au (3847 ppb), Ag

(3.2 ppm), and Zn (728 ppm). No exploration was completed along this drainage course during the 1989 program. Sample KWH-31 yielded elevated values for Ag (5.5 ppm), Cu (733 ppm), and Zn (1272 ppm). Reconnaissance prospecting along this drainage area located outcrops of brecciated chert containing a stockwork of quartz stringers, however, no mineralization was located. Stream silt samples collected along this drainage course yielded elevated Ag, Zn and/or As values.

GEOLOGY

Regional Geology

The property lies within the Intermontaine Tectono-Stratigraphic Belt -- one of five parallel, northwest-southeast trending belts which comprise the Canadian Cordillera (Figure 3). The Charlotte 3 property is situated near the boundary between the Stikine Terrane, which comprises the majority of the western part of the Intermontaine Belt, and the unmetamorphosed sediments of the Bowser Basin.

During Late Triassic and Early Jurassic time, the Stikine Terrain was the site of very active calc-alkaline volcanism. This volcanism was also accompanied by felsic intrusions that may have been comagmatic with the volcanic events. The sequences of rocks deposited at this time are now referred to as the Hazelton Group (Table 2). This predominantly volcanic assemblage is characterized by basal pyroclastic rocks overlain by argillites and, finally, by coarse volcanic breccia and conglomerate with interbedded tuffs, greywacke and siltstone.

At the end of Early Triassic time, this volcano-plutonic complex was uplifted to form the Stikine Arch. During Middle to Late Jurassic time, parts of the Stikine Terrain were filled with detritus shed from the Stikine Arch. The resulting, mainly sedimentary, sequences are referred to by Grove (1986) as the Betty Creek Formation, the Salmon River Formation and the Nass Formation (Table 2).

The Unuk River Valley is predominantly underlain by an Upper Triassic to Lower Jurassic section composed of miogeosynclinal volcanic and sedimentary rocks. The composition of the volcanic rocks ranges from andesitic to rhyolite. Thick layers of siltstone and greywacke are intercalated within the predominantly volcanic assemblage. Grove (1986) assigns most of these rocks to the Unuk River Formation. This formation is the oldest of the Hazelton Group and unconformably overlies older Triassic units. The Unuk River Formation includes diagnostic Hettangian, Upper

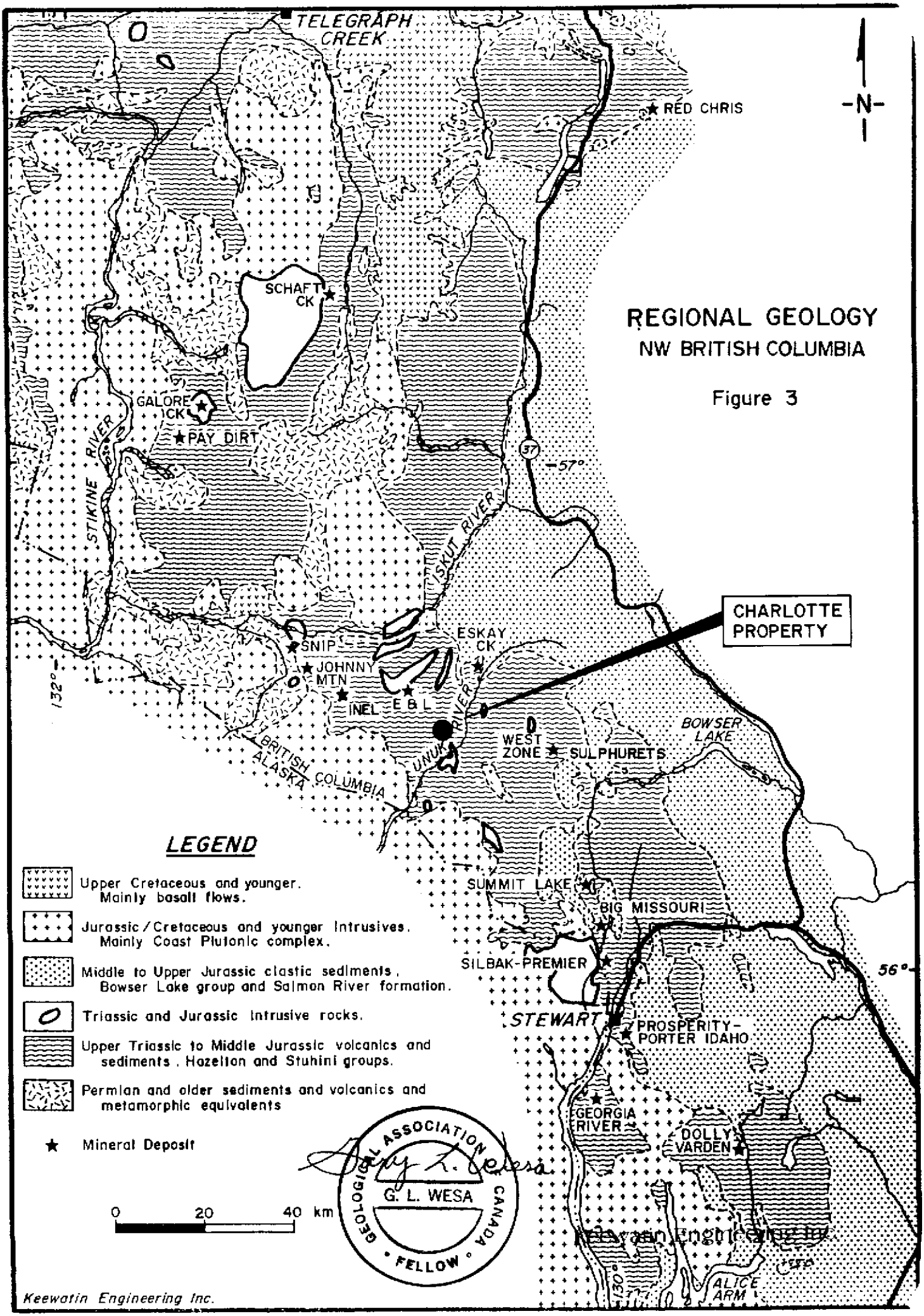
Pleinsbachian and Lower to Middle Toarcian fossil assemblages. In the type area, this formation has a measured cumulative thickness of over 14,000 metres.

The Unuk River Formation is unconformably overlain by the Middle Jurassic Betty Creek Formation which is mainly composed of clastic sediments with minor conglomerate, carbonate, chert, and volcanic rocks. Fossil collections made from the various sediment units have defined the age of the Betty Creek Formation as Lower to Middle Bajocian, that is, lower Middle Jurassic.

The Mount Dilworth Formation, a thin but regionally extensive blanket of felsic pyroclastics, overlies the Betty Creek Formation. Pyritiferous felsic welded tuffs, tuff breccia flows and thin lenses of siltstones, mudstones and argillites are the prevalent lithologies. Sedimentary bands within the Mount Dilworth Formation host much of the mineralization at the Eskay Creek deposit.

A thick sequence of Middle Jurassic, thinly bedded turbiditic siltstones (Salmon River Formation) overlies the Mount Dilworth Formation. Anderson (1990) has recently postulated that the Eskay Creek deposit "appears to be stratabound within the siliceous to limey sedimentary rocks and pillowed lava sequence of the Eskay Creek facies of the Salmon River Formation".

The Hazelton Group rocks were intruded by granitic rocks of the Coast Plutonic Complex. These intrusions consist of a variety of plutons representing at least four intrusive episodes spanning late Triassic to Tertiary time. These include synvolcanic plugs, small stocks, small satellite diapirs, dyke swarms, isolated dykes and sills as well as batholiths belonging to the Coast Mountain Complex. Granodiorite is the predominant rock type, although a variety of lithotypes are recorded. The orogenic event which accompanied this intrusive phase also produced a major structural grain along the western margin of the Central Cordillera. The stratigraphic sequence has been folded, faulted and weakly metamorphosed during Cretaceous time, however, some Jurassic strata are polydeformed and may record an earlier deformational event. Regional metamorphism is classified as lower greenschist facies and is characterized by saussuritized plagioclase, chloritized mafic minerals and the conversion of clay constituents to white mica. The age of metamorphism is Cretaceous, however, near the contact of the Coast Plutonic Complex, granitic dykes thought to be offshoots of the complex have been mylonitized, indicating that deformation has also occurred after this Eocene intrusive event (Alldrick et al., 1987). Remnants of Pleistocene to Recent basaltic flows and tephra are preserved locally.



REGIONAL GEOLOGY
NW BRITISH COLUMBIA

Figure 3

AGE	GROUPS	FORMATIONS	MEMBERS	LITHOLOGIES
Bathonian	Bowser Lake	Ashman	Main Sequence	Turbidites, wackes, intraformational conglomerates
			Basal Conglomerate	Chert pebble conglomerates
Bajocian to Toarcian	Spatsizi(?)	Salmon River	Pyjama Beds	Thin bedded, alternating siltstones and mudstones
			Basal Limestone	Gritty, fossiliferoius limestone
Toarcian	Hazelton	Mount Dilworth	Upper Lapilli Tuff	Dacitic lapilli tuff with flow-banded clasts
			Middle Welded Tuff	Dacitic welded ash flow and lapilli tuff
			Lower Dust Tuff	Dacitic dust tuff
Pliensbachian		Betty Creek	Sedimentary Members	Hematitic volcaniclastic sediments, and turbidites
			Volcanic Members	Andesitic to dacitic tuffs and flows
Sinemurian to Hettangian(?)		Unuk River	Premier Porphyry	Two feldspar + hornblende porphyritic tuffs
			Upper Andesite	Massive tuffs with local volcaniclastic sediments
			Upper Siltstone	Turbidites, minor limestones
			Middle Andesite	Massive tuffs and minor volcaniclastic sediments
			Lower Siltstone	Turbidites
			Lower Andesite	Massive to bedded ash tuffs
Norian to Carnian	Stuhini		Volcanic Members	Pyroxene porphyry flows and tuffs
			Sedimentary Members	Turbidites, limestones, conglomerates

TABLE 2. Table of Formations - Unuk River Area

Regional Economic Geology

The Iskut-Unuk River area hosts many significant gold, silver and base metal deposits (Figure 3). These deposit types include epithermal and mesothermal precious metal shear-veins and replacements, calc-alkaline and alkaline copper ± gold porphyries, concordant massive sulphides, stratabound hydrothermal deposits and skarns. The majority of these are hosted by Upper Triassic to Lower Jurassic volcanics and sediments and display a spatial relationship with early Jurassic potassic intrusions. A brief description of some of the more important deposits in the region are as follows:

Eskay Creek (21 Zone)

The mineralization at Eskay Creek was discovered in 1932 and active prospecting has continued sporadically since then. Two adits were 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).

Eskay Creek appears to display characteristics of both epithermal exhalative and volcanogenic massive sulphide types of deposits. The deposit has been described as consisting of stratabound gold-silver-base metal zones, hosted by a carbonaceous mudstone unit (Salmon River Formation?) at the top of a rhyolite breccia sequence. The mudstone is overlain by andesitic pillow lavas. The rhyolite (Mount Dilworth Formation) is underlain by dacitic tuffs of the Betty Creek Formation. The southern part of the deposit (21A Zone) contains massive to disseminated stibnite-realgar mineralization with associated high grade gold and minor silver contents. This is underlain by a footwall stockwork zone in the rhyolite. The northern part of the deposit (21B Zone) is a very gold-silver rich, base metal sulphide lens, with extensive footwall stockwork mineralization. This mineralization is associated with pervasive quartz-chlorite-muscovite alteration and minor gypsum, barite, feldspar and calcite (Idziszek et al., 1990).

The 21C Zone lies 25 metres to 50 metres down section from the 21B Zone. Diamond drilling has identified the mineralized zone along a minimum strike length of roughly 600 metres. The 21C Zone is strongly mineralized with gold and silver, however, sulphide content is low compared to the 21B Zone. In addition, the Pumphouse Lake Zone has been traced by drilling over a strike length of 250 metres. There have been 665 surface diamond drill holes drilled to date plus an exploration decline has been driven to test the main contact ore lens and three mineralized horizons. Wall chip

assay results indicate a grade-width return of 1.56 oz/t Au and 40.5 oz/t Ag over 10 metres. This section includes 2.51 oz/t Au and 62.6 oz/t Ag over 5.54 metres. Underground drifting, bulk sampling and drilling will continue through the winter months of 1990-91.

Exploration activity has brought the total geological reserve base to an estimated 5,300,000 ounces gold equivalent at the 0.10 oz/ton Au threshold. This high grade reserve is contained within both the 21B and 21A Deposits. The potential to significantly increase the total reserve base is considered to be excellent. Immediately apparent potential lies within the northern 21B Deposit, in the Pumphouse Lake Zone, and the 21C Deposit. Additional new zones of discovery may be forthcoming pending results of surface drilling now underway elsewhere on the Eskay Creek property (Vancouver Stockwatch, September 18 and October 1, 1990).

Sulphurets Area

Several different deposit types are present in the Sulphurets map sheet (Open File 1988-4). A group of occurrences known as the Sulphurets Camp is located approximately 20 km southeast of Eskay Creek. Both porphyry type and mesothermal to epithermal precious metal deposits are present. Apparent overprinting of mineralization types and multiple generations of alteration and vein assemblages are noted. Most mineral occurrences in the area are hosted by the upper part of the Unuk River Formation or the lower part of the Betty Creek Formation (Britton et al., 1988). The Goldwedge Zone is hosted by the Betty Creek Formation. Other deposits in the camp include the Sulphurets and Snowfield Zones, the West Zone deposit and the Kerr deposit. Mineralization can be grouped into four main categories; veins, disseminations, intrusive contacts and stratabound. Extensive gossans are associated with mineralization in the area.

The mineralization of the West Zone is located in structurally controlled quartz vein stockworks within a silicified, sericitic alteration zone. The complex vein system, within the zone, is up to 40 metres thick and contains in excess of 60% vein material. The zone has been traced for over 600 metres along strike and for 500 metres at depth. Andesitic tuffs of the Unuk River Formation, near the volcanic-sediment contact, host the deposit. The mineralization consists of pyrite, electrum, native gold, argentite, galena, sphalerite, chalcopyrite, tetrahedrite, pyrargyrite, proustite, freibergite and stephanite.

Johnny Mountain

This mine has produced 100,300 tons of ore grading 0.46 oz/t gold, 1.0 oz/t silver and 0.75% copper to the end of October, 1989 (D. Yeager, personal communications, January, 1990). The deposit comprises five sub-parallel quartz veins, hosted by interbedded andesitic to dacitic volcaniclastics and volcanic sediments (Lower Jurassic) which are cut by feldspar porphyry dykes. The veins reportedly thicken and contain higher grades at quartz-carbonate cross structures and at lithologic contacts. The northeast trending veins are generally one to two metres wide and contain pyrite and chalcopyrite with minor sphalerite, galena and pyrrhotite. Electrum and native gold have been reported. A distinctive alteration halo surrounds the veins. Outward from the vein, the alteration sequence progressively changes from massive potassium feldspar and ankerite to a quartz-pyrite stringer zone to a disseminated pyrite zone.

Snip

This deposit is hosted by massive to bedded siltstone and feldspathic wacke (Upper Triassic). The ore zone ('Twin Zone') is described as a one to ten metre thick, discordant, banded shear vein which trends southeast. The zone consists of veins with alternating bands of massive, streaky calcite, heavily disseminated to massive pyrite, biotite-chlorite, quartz and pyritic to non-pyritic fault gouge. Mineralization consists of pyrite, lesser pyrrhotite, minor sphalerite and locally abundant arsenopyrite, galena, molybdenite and chalcopyrite. The gold grades are reported to be fairly uniform throughout, although native gold has been observed locally.

Summit Lake (Scottie Gold)

This mine produced 160,264 tonnes of ore grading 18.6 g/t gold and 10.1 g/t silver between 1981 and 1984. Epigenetic, mesothermal veins are developed along three sub-parallel shear systems which form part of a ladder vein set. Within these structures are plunging, parallel ore shoots consisting of massive pyrrhotite and/or pyrrhotite-pyrite, up to 5 metres wide. The shoots are usually symmetrically bordered by gold-bearing, quartz-carbonate-pyrrhotite-base metal sulphide vein swarms and disseminated base metals. These are hosted by brecciated and intensely silicified, hematized, carbonatized and chloritized wallrock. The overall gold/silver ratio is 2:1.

SIB Group

American Fibre and Silver Butte Resources have drilled 20 holes on their SIB claims and intersected mineralization contained in graphitic mudstone interbedded with felsic volcanic units. One hole returned 49.6 feet grading 0.42 oz/t Au and 30.91 oz/t Ag which includes 16.7 feet of 0.86 oz/t Au and 50.24 oz/t Ag. The geological setting is believed to be similar to the Eskay Creek deposit (The Northern Miner, October 22, 1990).

Inel

Avondale Resources conducted underground drilling and drifting of the AK Zone at the Inel property which produced significant high grade assay results in 1989. The underground program comprised 1,500 feet of adit and footwall drifting. A recent 24.3 foot intercept grading 1.19 oz/t Au, 1.39 oz/t Ag and 0.87% zinc was returned from underground drilling (The Northern Miner, October 15, 1990).

Recent exploration activity north of the Iskut River has resulted in the discovery of three different styles of mineralization. Gulf International has been drilling stratabound skarn mineralization (Mississipian age) on their McLymont Creek property. The zone has been traced for some 300 metres along strike and 200 metres at depth. The best reported drill results include 3.55 oz/t gold over 6.5 feet and 0.62 oz/t gold over 10 feet (L.O.M. Western Securities Ltd., 1990). Mineralization consists of pyrite, chalcopyrite, sphalerite and galena with a gangue of barite, calcite, gypsum, magnetite and specularite. It is believed that the formation of the deposit is due to the presence of a strong structure, chemically reactive host rocks and close proximity to intrusive bodies (Logan et al., 1990). Palaeozoic strata on Kestral's KRL property and Avondale's Forrest property are reported to host mesothermal, shear related gold mineralization. Kestral has reported that channel samples from veins graded up to 7.28 oz/t gold. Avondale has indicated that a large mineralized hydrothermal system, which has been traced for over 3 miles, hosts at least 19 precious and base metal occurrences. Rock samples grading up to 5.8 oz/t gold, 3.6 oz/t silver and 9.5% copper have been reported (L.O.M. Western Securities Ltd., 1990). The mineralization is found in quartz stockworks and veins and consists of gold and silver-bearing quartz-chalcopyrite, with or without malachite, azurite, arsenopyrite, galena, bornite and hematite. The mineralization is spatially related to granitic (Jurassic) and, locally, dioritic (Permian) intrusions. Further north, Cominco has reported polymetallic, massive sulphide float on their Fore More property. They have found more than 800

massive sulphide boulders containing fine-grained pyrite, sphalerite, galena, barite, chalcopyrite and, locally, silver minerals (Logan et al., 1989).

Britton et al. (1989) listed 55 mineral occurrences on the Unuk area map sheet. These showings are predominantly gold/silver occurrences and are hosted by a number of various lithologies. Most can be classified into one of four categories: stratabound, vein, skarn, and disseminations. Grove (1986) determined that the age of the mineralizing events is variable, and notably, can be post-Triassic.

Stratabound mineralization consists almost exclusively of pyritic zones and lenses contained within a particular stratum or restricted set of strata. The best example is the Eskay Creek deposit.

Intrusive-contact (skarn) deposits show a close spatial and temporal relationship with igneous intrusions. Three deposits in this category are the E & L nickel/copper deposit (Minfile #006), the Max copper/iron skarn (Minfile #013), and the Chris-Anne copper/iron skarn (Minfile #125). Britton et al.(1989) stated:

> Mineralization at the E & L occurs within two medium- to coarse-grained, olivine-pyroxene gabbro bodies. These roughly triangular plugs are each approximately 1300 square metres in area and are probably connected. They intruded a sequence of argillites, tuffaceous siltstones, and grey dacitic ash tuffs that strike northwest with moderate to steep southwesterly dips. Mineralization consists of pyrrhotite, pentlandite, and chalcopyrite, with lesser amounts of pyrite and magnetite. In the northwestern gabbro, mineralization extends up to the contact with the sediments, whereas in the southeastern gabbro, mineralization is confined to the pluton. Diamond drilling has delineated pipelike pods and disseminations of sulphides to a depth of 120 metres. Drill-indicated reserves are 2.8 million tonnes of 0.7% Ni and 0.6% Cu (Sharp, 1965).
>
> The Max prospect lies on the northwest side of McQuillan Ridge, between the Unuk and South Unuk Rivers, at elevations between 455 and 1500 metres. Massive magnetite with lesser pyrrhotite and chalcopyrite occur in skarn-altered sedimentary rocks adjacent to a diorite stock. Garnet, epidote, actinolite, and diopside characterize the skarn assemblage. Drilling has indicated a reserve of 11 million tonnes at 45% iron (Canadian Mines Handbook 1973-1974, page 432).
>
> The Chris-Anne prospect lies approximately 3 kilometres east of the Max. Skarn mineralization is reported in limestone beds which are up to 10 metres thick and that are interbedded with volcaniclastics. Magnetite and pyrrhotite-rich layers, from 0.5 to 7 metres thick, with minor chalcopyrite, extend over a distance of 1 km. There are minor intrusive bodies reported on the property. Grades range from 0.1% to 0.4% copper (Allan and MacQuarrie, 1981).

The gold potential of these skarn deposits does not appear to have been tested. Based on recent skarn studies (Ettlinger and Ray, 1988), this area has many features that are associated with gold-enriched skarns elsewhere in the province: sequences of calcareous and tuffaceous host rocks; structural deformation; intrusion by dioritic I-type granitoids; and contact metamorphism and recrystallization. Some auriferous skarns are enriched in cobalt, an element that may be a useful pathfinder.

High-grade precious metal quartz veins are the target of exploration programs at Mount Madge (Minfile #240 and #233) by Bighorn Development Corporation, and at the Doc prospect (Minfile #014) by Echo Bay Mines Limited. Britton et al.(1989) reported:

The Mount Madge prospects are located south of Sulphurets Creek near its confluence with Unuk River, on the east and west sides of Mandy Glacier. Two different targets are being evaluated (Kruchkowski and Sinden, 1988). On the west, the C-10 prospect (Minfile #240) is a stockwork of thin quartz veinlets, locally with thicker quartz lenses, in intensely altered, fine-grained tuffaceous andesite or dacite. Quartz veinlets locally form up to 30% of the rock. The alteration assemblage consists of quartz and sericite with up to 10% pyrite. Chalcopyrite and traces of sphalerite are also present. The rocks are strongly foliated to schistose and are very similar to the broad alteration zones seen at Brucejack Plateau 12 kilometres to the northeast (Britton and Alldrick, 1988). Soil samples locally return analyses in excess of 1 ppm gold.

Two kilometres to the east, Ken Konkin discovered a massive pyrite-siderite float boulder with visible gold. Prospecting uphill led to the discovery of the GFJ veins (Minfile #233), apparently flat-lying, zoned siderite-quartz-sulphide veins that returned assays up to 121 grams per tonne gold (Kruchkowski and Sinden, 1988). The veins are poorly exposed. Float blocks seen this year display symmetrical zoning from margin to core across vein widths of 10 to 15 centimetres. Vein margins are 1 to 2 centimetres of thin white quartz layers separated by hairline accumulations of very fine-grained tin-white sulphide, probably arsenopyrite. The core is a very coarse-grained intergrowth of siderite, milky quartz, and cubes and clusters of pyrite, with lesser amounts of sphalerite and chalcopyrite as crystals and irregular masses. Rare tetrahedrite and visible gold have been observed (K.Konkin, personal communication, 1988). The veins cut variably foliated andesitic ash tuffs with thin interbeds of foliated to schistose siltstones.

The Doc prospect (Minfile #014) is located at treeline on a ridge overlooking the South Unuk River, opposite the mouth of Divelbliss Creek. The prospect consists of several west-northwest trending quartz veins up to 2 metres wide that have surface strike lengths of up to 275 metres (Gewargis, 1986). The main veins (Q17, Q22) are massive white quartz with sparse sulphide mineralization (5% to 10%) consisting of galena, pyrite, chalcopyrite, and sphalerite, with associated specular hematite and magnetite. Precious metal values are mostly confined to the sheared edges of veins and immediately adjacent wallrock. Shear zones with very little quartz may also return good values. Seraphim (1948) observed that gold was associated with either specular hematite or with galena and pyrite, but not with chalcopyrite and pyrite assemblages. The veins are a true fissure type, crosscutting folded and metamorphosed andesitic tuffs and thin-bedded sediments, including marble, that

TABLE 3: Summary of Mineral Deposits in the Stewart-Iskut River Area

Deposit	Type	Host	Ore Reserves (tons)	Grade	Comments
Silbak-Premier	epithermal/ porphyry	Unuk River Formation (Lower Jurassic)	6,100,000	0.064 oz/t Au & 2.39 oz/t Ag	production resumed 1989
Big Missouri	epithermal and stratabound	Unuk River Formation (Lower Jurassic)	1,860,000	0.091 oz/t Au & 0.67 oz/t Ag	production resumed 1989
SB	epithermal	Unuk River Formation (Lower Jurassic)	152,000	0.335 oz/t Au, 0.79 oz/t Ag, 1.42% Pb-Zn	1982 discovery
Summit Lake	mesothermal shear vein	Unuk River Formation (Lower Jurassic)	132,000	0.56 oz/t Au	closed 1985
West Zone	mesothermal shear vein	Unuk River Formation (Lower Jurassic)	854,072	0.354 oz/t Au & 22.94 oz/t Ag	feasibility stage
Granduc	concordant massive sulphide	Unuk River Formation (Lower Jurassic)	10,900,000	1.79% Cu, 0.004 oz/t Au & 0.24 oz/t Ag	closed 1984
Kerr	alkaline porphyry	Unuk River Formation (Lower Jurassic)	66,000,000	0.86% Cu & 0.010 oz/t Au	1987 discovery
Eskay Creek	stratabound hydrothermal system	Mount Dilworth Formation (Lower Jurassic)	6,035,220 (prelim.)	0.643 oz/t Au & 15.61 oz/t Ag	1988 discovery drilling still in progress
Goldwedge	mesothermal shear vein	Betty Creek Formation (Lower Jurassic)	295,000	0.63 oz/t Au & 2.44 oz/t Ag	1981 discovery
Johnny Mountain	mesothermal shear vein	Unuk River Formation (Lower Jurassic)	740,000	0.52 oz/t Au, 1.0 oz/t Ag & 0.75% Cu	production commenced 1988
Snip	mesothermal shear vein	Stuhini Group (Upper Triassic)	1,032,000	0.875 oz/t Au	feasibility stage
Galore	alkaline porphyry	Stuhini Group (Upper Triassic)	125,000,000	1.06% Cu, 0.013 oz/t Au & 0.25 oz/t Ag	1955 discovery
Shaft Creek	calc alkaline porphyry	Stuhini Group (Upper Triassic)	1,000,000,000	0.30% Cu & 0.004 oz/t Au	dormant
Red Chris	alkaline porphyry	monzonite (Late Triassic to Early Jurassic)	43,700,000	0.56% Cu & 0.010 oz/t Au	dormant
E & L	porphyry	Nickel Mountain Gabbro (Jurassic)	2,930,000	0.80% Ni & 0.62% Cu	dormant

have been intruded by irregular dioritic dykes or sills and small monzodioritic plugs. The veins are different from any others seen in the Sulphurets or Unuk map areas. They have very restricted wallrock alteration aureoles, no apparent zoning, and appear to be limited to a few large fluid pathways. In this, they display characteristics of mesothermal veins. Structural control of the vein sets has not been determined but may be due to fractures related to folds in the host rocks. Total mineral inventory of the Q17 and other veins is given as 426,000 tonnes with 9.26 grams per tonne gold and 44.91 grams per tonne silver (*Northern Miner*, November 7, 1988).

Porphyry-type disseminated pyrite, chalcopyrite, and molybdenite mineralization occurs immediately north and south of King Creek, west of Harrymel Creek. Two properties have been worked: the VV to the south and the Cole to the north.

The VV property (Minfile #079) is the site of a heavily weathered monzonitic intrusive body in fault contact, on the east and west, with layered andesitic lapilli tuffs and tuff breccias with minor siltstone and calcareous sandstone interbeds. The stock is 250 metres wide, at least 6 kilometres long, strikes northerly, and dips steeply to the west, parallel to the country rocks. Chalcopyrite occurs in quartz stockworks and as fine disseminations within the monzonite. Molybdenite, sphalerite, malachite, and azurite have also been reported (Winter and McInnis, 1975; Mawer et al.,1977). Representative assays give 0.34% copper, 0.003% molybdenum, 2.1 grams per tonne silver, and 0.8 gram per tonne gold. Maximum gold and silver values obtained were 8.65 grams per tonne gold and 19.54 grams per tonne silver (Mawer et al.,1977).

The Cole prospect (Minfile #209) is situated approximately 4 kilometres north of the VV claims; it appears to be on strike with the same fault system and has similar intrusive and country rocks. Mineralization consists of up to 10% pyrite as disseminations and fracture fillings. Minor chalcopyrite and malachite have been reported but the bedrock source of the gold/silver soil anomalies has not been located (Korenic, 1982; Gareau, 1983). Reported assays range up to 0.43% copper, 7.12 grams per tonne gold, and 13.03 grams per tonne silver. Gold and copper values show a positive correlation on both properties.

Property Geology

The Charlotte property was mapped in 1990 by Keewatin Engineering Inc. personnel, at a scale of 1:10,000 using contour maps blown up from 1:50,000 topo maps (Map 1). The property is almost completely (97%) forested. Outcrop (2%) is almost entirely restricted to two deeply incised sub-parallel north-south drainage gullies near the western boundary of the property. Several small outcrops are found on the steep ridge and south facing slope between the gullies.

Government regional geological mapping by Britton et al. (1989) indicates that the Charlotte 3 property is underlain by Upper Triassic sediments of the Stuhini Group (Figure 3). The Upper Triassic to Lower Jurassic Unuk River Formation forms the bedrock of the area immediately west of the property. These two units are described by Britton et al. (1989) below:

Lithologies

Upper Triassic Stuhini Group

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

Upper Triassic to Lower Jurassic Unuk River Formation

These Norian to Sinemurian age rocks of the Unuk River Formation constitute the lowermost unit of the Hazelton Group. Britton et al.(1989) described this sequence as green and grey intermediate to mafic volcaniclastics and flows with locally thick interbeds of fine-grained immature sediments. The volcanics are reported to be dominantly massive to poorly bedded plagioclase (± 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 lie near the top of a thick sequence of clastic sedimentary rocks. Neither an angular unconformity nor a widespread conglomerate marks the lower contact.

Geological mapping by Keewatin Engineering Inc. personnel confirms that the bedrock of the Charlotte 3 property comprises interbedded chert, siltstone, argillite, intermediate (andesitic) ash tuffs and massive coarse grained greywacke. Two occurrences of chert breccias and argillaceous chert breccias are recorded. One was documented, during the 1989 reconnaissance program, at the 2,500 foot elevation in the east tributary of the eastern drainage gully. The second occurrence was mapped in the western tributary to this same drainage at approximately 3,050 feet (Map 1). These lithologies belong to the Stuhini Group as described by Britton et al. (1989).

The upper levels of the two drainage gullies expose assemblages of thinly bedded, pale grey chert and siltstone, dark argillaceous chert and local thinly bedded to laminated, siliceous andesitic tuffs. A shear zone of uncertain width and trend is postulated for the 3,050 foot elevation in the western tributary arm of the eastern drainage gully as indicated by a graphitic, foliated, argillite-chert breccia accompanied by an extensive calcite vein stockwork and 5-10% pyritic sulphide. The wallrock appears strongly altered and sheared roughly in the direction of the gully suggesting this drainage represents the surface trace of a fault.

Several small cliffs and bluffs of mottled grey, mainly coarse grained greywacke are exposed along the steep south sloping ridge between the two drainage gullies. These greywackes are massive, locally siliceous or weakly carbonaceous and appear to be poorly sorted.

Geological contacts are not clearly observed, however, measurable bedding attitudes from massive greywacke indicates that these units are striking northerly to easterly and dips are near vertical to steep northwesterly. Feldspar porphyry dykes were found intruding the sediments in the area adjacent to the southwestern property boundary. These dykes correspond to several felsic and feldspar porphyry dykes which intrude interbedded tuffs, argillites and cherts in King Creek in the adjacent Achilles property located south of the Charlotte 3 claim.

Structure

Geological mapping during the 1990 reconnaissance program and an examination of the 1989 data indicates that the strata on the property define a broad north-plunging anticline with moderately dipping to steeply dipping limbs (Map 1).

Fault zones observed on the Charlotte property are represented by the traces of drainage gullies which exhibit fracturing, brecciation and limonite-graphite alteration of the wallrock. Two sub-parallel drainage gullies located at the western edge of the property were mapped as fault zones and may readily be interpreted from air photographs and topographic maps. Locally, foliation and shearing were observed in the western tributary gully of the eastern drainage. These gullies continue into the Achilles property to the south where they exhibit extensive fracturing and brecciation accompanied by quartz-carbonate-limonite alteration and structurally controlled sulphide mineralization. Brecciated chert (1989 report) is documented in the eastern tributary of the eastern fault gully and corresponds with similar carbonatized, brecciated tuffs and cherts found in this gully on the Achilles property.

Alteration

Sedimentary strata appears to be weakly to strongly silicified and locally carbonatized within and between the two fault controlled gullies. Massive greywacke is weakly siliceous and locally weakly carbonaceous. The strongest observed alteration occurs in the fault gullies where chert, argillite and interbedded fine intermediate tuffs are sheared, locally foliated and variably graphitic and siliceous. Calcite filled fractures and fine stockwork veins in chert and argillite breccias accompany shearing in the western tributary of the eastern gully. Weak to moderate limonitic alteration in the form of limonitic fractures and surface staining were observed in weakly pyritized (<1% disseminated pyrite) tuffaceous layers. Trace amounts of hematite oxidation were also observed associated with limonite in graphitic, sheared argillite breccias.

Mineralization

Geological mapping and lithogeochemical sampling failed to identify any areas of significant economic mineralization. Weak (<1% to 2%) pyrite mineralization occurs ubiquitously throughout the property and is commonly localized in higher concentrations along the two sub-parallel fault gullies. Pyritic sulphides in the form of disseminations, quartz-calcite-pyrite stringers and stockwork veins form 10-12% of the rock in an argillite-chert breccia exposed in the narrow west tributary fault gully of the eastern drainage (Map 1).

1990 EXPLORATION PROGRAM

Geological Mapping

Approximately 30% of the property was examined during the 1990 program and work performed consisted of geological mapping, lithogeochemical sampling, stream silt sampling and contour soil sampling primarily in the western part of the claim. Mapping traverses were conducted down the upper parts of the two drainages in the western part of the claim and the steep, locally cliffed ridge between the two drainages. The two steep incised gullies were silt sampled from approximately the 3,250 foot elevation southward to the south claim boundary (Map 2). Silt sampling on the eastern drainage was extended southward and terminated at King Creek. A single 450 metre long contour soil line was established from a starting point on a central fork of the east drainage and followed the 3,000 foot contour southeastward. Two stream silt samples returned elevated values of 146 ppb Au and 188 ppb Au at the northern headwaters of the eastern drainage between the 2,800

foot and 3,200 foot elevations. These anomalies and lithologies will be discussed in the following sections.

Geochemistry

Sampling Procedure

A total of three rock samples, 66 stream silt samples and 10 contour soil samples were collected during the 1990 reconnaissance survey. Rock grab samples were collected from limited exposure, in the eastern fault gully, exhibiting favourable characteristics such as sulphide content, alteration and shearing. Lithogeochemical samples were placed in marked plastic sample bags accompanied with a numbered tag for sample identification purposes. All sample sites were marked with a tyvek tag and fluorescent ribbon coded with the corresponding sample number.

Soil samples were collected from an average depth of 25 cm at 50 metre slope corrected intervals from a single contour line established at the 3,000 foot contour east of the eastern drainage gully. Ten soil samples were collected from sample pits dug with a long handled mattock from which good representative B_1 horizon soils were obtained. Soil profiles are well developed on the timbered slopes and soils are reddish-brown sandy clays and silts. Soil samples were placed in numbered, large gusseted kraft paper soil bags and the site correspondingly identified with a coded fluorescent ribbon and tyvek tag.

Stream silt samples were collected from the two active, sub-parallel drainage gullies in the western part of the Charlotte 3 property. Sixty-six stream silt samples were collected at 50 metre intervals along these two fault zones and placed in marked kraft paper sample bags. Sample sites were correspondingly marked with a tyvek tag and fluorescent ribbon. The two drainages were extensively sampled, at close intervals, to better detect the sources of any mineralization within these two fault zones.

Detailed notes were recorded for all of the samples and these are incorporated in Appendix V. Analytical results are presented in Appendix IV and geochemical values are plotted on Maps 3 and 4. Ground control for the contour lines, mapping and stream silt sampling was provided by altimeters, compass and topo chain. All crews were supplied with 1:10,000 and 1:50,000 scale topo maps for plotting geological and geochemical data.

Samples were subsequently shipped to Bondar-Clegg and Company Ltd. in North Vancouver for geochemical analysis/assay. The analytical techniques are described in Appendix III.

Rock Geochemistry

Reconnaissance mapping and lithogeochemical sampling were completed over selected parts of the property. This work was concentrated on the steep slope between and in the two drainage courses of the claim, where rock exposures were most abundant.

During the course of geological mapping, three rock grab samples were collected from near the headwaters of the western tributary of the eastern drainage gully. The rock sample locations are plotted on Map 2 and the geochemical values are plotted on Maps 3 and 4. Analytical results are presented in Appendix IV and rock sample descriptions are recorded in Appendix V.

The rock grab samples were sulphide (pyrite) bearing and collected within the fault zone which was characterized by quartz-carbonate-limonite-graphite alteration and local shearing and foliation. Analytical results for gold and base metals were low and values recorded were less than 12 ppb Au.

Soil Geochemistry

A total of 10 contour soils were collected, at 50 metre slope corrected intervals, from a single short line. The sampling program was terminated prematurely due to deteriorating weather conditions at the time of sampling. Prolonged unfavourable and inclement weather conditions precluded revisiting the site to continue contour soil sampling eastward to test this area examined during the 1989 reconnaissance program. The established soil line follows the 3,000 foot contour east of the eastern drainage gully. Good quality soil samples were obtained from well developed, rusty orange to reddish brown B_1 horizons at an average depth of 25 cm. Soils consist of silty to sandy clays with minor fragmental rock chips.

The soil line follows steep southwest sloping terrain (Map 2). Analytical results are low, recording two weakly elevated gold values of 31 and 47 ppb. A moderately elevated silver value of 7.8 ppm, an arsenic high of 366 ppm and a zinc high of 170 ppm were obtained from a single soil sample. A weakly elevated gold value of 47 ppb corresponded to an elevated mercury value of 0.626 ppm. This correlation follows the pattern observed on the Achilles property to the south and also the

pattern of coincident elevated Au, As and Hg values recorded from the stream silt samples collected in the two drainage gullies in the western Charlotte 3 claim.

Stream Silt Geochemistry

Sixty-six stream silt samples were collected at 50 metre intervals along the course of the two drainage gullies through the western part of the Charlotte 3 claim (Map 2). The western drainage recorded a single weakly elevated gold value of 39 ppb and the middle tributary of the eastern drainage gully recorded six weakly to moderately elevated gold values between 45 ppb and 188 ppb (Map 3). These gold values in silts were recorded over bedrock characterized by alteration, pyritic mineralization and shearing within a north-south fault zone as indicated by geological mapping. Wallrock in the gullies appears variably limonitic, brecciated and silicified.

An examination of Maps 3 and 4 shows a close correlation between elevated gold, lead and arsenic values from the headwaters of the eastern drainage gully in the northwestern sector of the Charlotte property. Silt samples 90PWL002 to 90PWL009 returned elevated arsenic (96-282 ppm) and lead (27-77 ppm) values plus two strongly elevated mercury values of 1.135 ppm and 2.511 ppm. These values correlate with the six weakly to moderately anomalous gold values of 45 ppb to 188 ppb. The highest copper value of 367 ppm was returned from the headwaters of the western drainage and the highest zinc value (818 ppm) was returned from a silt taken 350 metres downstream.

CONCLUSIONS

Geological mapping, stream silt sampling and contour soil sampling was the focus of exploration activity on the Charlotte 3 property during 1990. Mapping has shown that the property bedrock geology consists of an assemblage of northerly to easterly striking chert, argillite, siltstone, greywacke and andesitic tuffs of the Upper Triassic Stuhini Group. Locally, minor fine andesitic ash or lithic tuffs are interbedded with cherts. Brecciated chert containing a stockwork of quartz stringers (1989 report) and limonite-graphite altered argillite-chert breccia containing 10-12% disseminated and stringer pyritic sulphides and calcite vein stockwork occurs in sheared, foliated bedrock exposed in tributaries of the eastern drainage. A total of three rock grab samples, 66 stream silt samples and 10 contour soil samples were collected for analysis with the objective of evaluating the property's economic potential plus following up geochemically anomalous areas from the 1989 program. Weakly to moderately elevated gold values (up to 188 ppb Au) are recorded in stream silts near the headwaters of the eastern drainage gully in the northwestern corner of the Charlotte

property. Coincident, weakly to moderately elevated values exist for lead (77 ppm) and the pathfinder elements of arsenic (282 ppm) and mercury (2.511 ppm) in silts collected along a 350 metre section of this drainage suggesting the source of these elevated values may be structurally controlled.

The bedrock from these gullies is altered, sheared and locally brecciated and reflects the structural trend in the western part of the Charlotte claim. The gullies represent minor fault zones and linears which provide conduits for alteration fluids and sulphide mineralization noted on the Charlotte claim and, particularly, on the adjacent Achilles property to the south. Trace to minor quantities of finely disseminated pyrite occur within the lithologies mapped on the Charlotte property, however, zones of brecciated argillite and chert contain up to 10-12% pyritic sulphides.

Rock grab samples collected in the western tributary gully of the eastern drainage failed to yield significant gold or base metal values. Zinc values appear to be somewhat elevated throughout the areas examined during the 1989 and 1990 programs.

Results from sampling were disappointing, however, the presence of apparent structurally controlled elevated gold, arsenic and mercury values plus the presence of untested weakly elevated gold-in-rock values to the east, which may be related to buried structures, warrants further investigation of these areas. The sources of elevated values from the 1990 stream silts and the 1989 reconnaissance program have not been determined, and there is an indication that the area may have potential to host structurally controlled mineralization.

RECOMMENDATIONS

Although the results from the 1990 reconnaissance program are somewhat disappointing, there remains untested areas of the Charlotte property possessing the potential to host positive gold and base metal mineralization. Therefore, additional work is required to fully evaluate the property's mineral potential. Attention should be focused on the headwaters of the tributaries of the eastern drainage gully and the southern and southwestern slopes toward the eastern end of the claim.

The objective of the proposed continued exploration program should be to investigate: silicified, carbonatized breccia zones, representing fault zones; geochemical targets outlined during the 1989/90 program; and the overburden-covered area to the east of the drainages. The recommended follow-up program should comprise the following:

1) Careful, detailed mapping and lithogeochemical sampling of breccia zones and brecciated chert float locations to better define potential fault structures. Particular attention should be given to determining the presence of fault zones concluded to be a significant factor in the control and emplacement of mineralization.

2) Contour soil sampling, at 50 metre intervals, following the 2,500, 3,000 and 3,500 foot contours in the area east of the eastern drainage gully. This survey would target areas of mineralized bedrock, and possibly fault zones, masked by glacial cover and forested slopes.

3) Stream silt sampling should be incorporated with the contour soil survey as evidence from the 1990 program suggests that silt samples collected from drainages exhibiting fault related brecciation and quartz-carbonate stockwork development yielded elevated Au, As, Hg and Pb values.

Respectfully submitted,

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REFERENCES

Alldrick, D.J.; Drown, T.J.; Grove, E.W.; Kruchkowski, E.R.; Nichols, R.F. (1989): Iskut-Sulphurets Gold; in The *Northern Miner* Magazine, January 1989.

Anderson, R.G. (1989): A Stratigraphic, Plutonic and Structural Framework for the Iskut River Map Area (NTS 104B), Northwestern British Columbia; in Geol.Surv.Cda., Current Research, Part E; Paper 89-1E.

Aussant, C.H. and DuPre, D.G. (1989): Geological, Prospecting and Geochemical Report on the Charlotte 3 Mineral Claim for Backer Resources Ltd.

Britton, J.M. and Alldrick, D.J. (1988): Sulphurets Map Area (104A/05W, 12W; 104B/08E, 09E). British Columbia Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork 1987, Paper 1988-1.

Britton, J.M.; Webster, I.C.L.; Alldrick, D.J. (1989): Unuk Map Area (104B/7E,8W,9W,10E); in B.C.Energy Mines & Petr.Res., Geological Field Work 1988, Paper 1989-1, pp.241-250

Consolidated Stikine Silver Ltd.: - 1989 Annual Report.

Gareau, M.B. (1983): Geochemical Assessment Report on the Cole Claim, Skeena Mining Division; for DuPont of Canada Exploration Limited; B.C. Energy, Mines and Petroleum Resources, Assessment Report 11673.

Geological Survey of Canada, Open File 1645 (1988): National Geochemical Reconnaissance; Iskut River.

Grove, E.W. (1971): Geology and Mineral Deposits of the Stewart Area, British Columbia; B.C.Energy Mines & Petr.Res., Bulletin 58.

Grove, E.W. (1986): Geology and Mineral Deposits of the Unuk River-Salmon River-Anyox Area; B.C.Energy Mines & Petr.Res., Bulletin 63.

Hawkins, Paul A. & Associates Ltd. (October 1987): Report on Reconnaissance Mapping and Prospecting in the Unuk River Area, Skeena and Liard Mining Divisions; for Axiom Explorations Ltd.; B.C. Energy, Mines and Petroleum Resources, Assessment Report 16858.

Idziszek, C., Blackwell, J., Fenlon, R., MacArthur, G. and Mallo, D.W. (1990). The Eskay Creek Discovery, Mining Magazine, March 1990.

Idziszek, C., Blackwell, J.D., Fenlon, R., Mallo, D.W. and MacArthur, G. (1990). Exploration Updates - Eskay Creek Project, Abstract (revised) November 9, 1989, Prime Explorations Ltd.

Klein, J. (1968): Report on Airborne Geophysical Surveys, Stewart Area, British Columbia; for Granduc Mines Limited; B.C. Energy of Mines and Petroleum Resources, Assessment Report 1835.

Korenic, J.A. (1982): Assessment Report of Geological, Geochemical, and Geophysical Work Performed on the Cole Claim in 1981, Skeena Mining Division; B.C.Energy Mines & Petr.Res., Assess.Rpt.10474

Logan, J.M., Koyanagi, V.M. and Drobe, J. (1990). Geology of Forrest-Kerr Area, Northwestern British Columbia (104B/15). British Columbia Resources, Geological Fieldwork 1989, Paper 1990-1.

Logan, James M., Koyanagi, Victor M., Drobe, John R. (1990-2). Open File (Sheet 1 of 2). Geology, Geochemistry and Mineral Occurrences of the Forrest Kerr-Iskut River Area, Northwestern British Columbia, NTS 104B/15 and part of 104B/10, Province of British Columbia.

L.O.M. Western Securities Ltd. (1990). Stikine Arch - Canada's Golden Triangle.

Mawer, M., et al. (1977): Year-End Report, Mount Dunn Property, British Columbia; for Great Plains Development Company of Canada Ltd.; B.C. Ministry of Energy, Mines and Petroleum Resources, Assessment Report 6234.

National Geochemical Reconnaissance, 1:250,000 Map Series (1988). Iskut River, British Columbia (NTS 104B). Energy, Mines and Resources Canada, Geological Survey of Canada, G.S.C. Open File 1645.

Northern Miner: - Nov.7, 1988, October 15 and 22, 1990.

Pegg, R.S. (1988): Geological Compilation of the Iskut, Sulphurets, and Stewart Gold camps; for BP Resources Canada Limited, private company report.

Report on Business Magazine, November, 1990.

Vancouver Stockwatch, September 18 and October 1, 1990.

Winter, C.Q., McInnis, M.D. (1974): Geological and Geochemical Report on the VV 1-6 claims, Mount Dunn Area, British Columbia; for Great Plains Development Company of Canada Ltd.; B.C. Ministry of Energy, Mines and Petroleum Resources, Assessment Report 5616.

STATEMENT OF QUALIFICATIONS

I, GARY L. WESA, of #309 - 6669 Telford Avenue in the Municipality of Burnaby, in the Province of British Columbia do hereby certify that:

1. I am an independent consulting geologist under subcontract to Keewatin Engineering Inc. with offices at Suite 800 - 900 West Hastings Street, Vancouver, B.C.

2. I am a graduate of the University of Saskatchewan (1974) with a B.Sc. degree in Geology and I have practised my profession continuously since graduation.

3. I have been employed in mineral exploration since 1970 in Canada and the U.S.A.

4. I am a Fellow of the Geological Association of Canada.

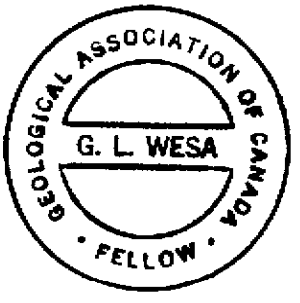
5. I am the author of the report entitled "Geological and Geochemical Report on the Charlotte 3 Mineral Claim, Skeena Mining Division, British Columbia", dated November 29, 1990.

6. I have personally performed or supervised the work referenced in this report and I am familiar with the regional geology and geology of nearby properties.

7. I do not own or expect to receive any interest (direct, indirect or contingent) in the property described herein nor in the securities of Canadian Industrial Minerals Corp. in respect of services rendered in the preparation of this report.

Dated at Vancouver, British Columbia this 29 day of November, 1990.

Respectfully submitted,



Gary L. Wesa, B.Sc., FGAC

APPENDIX I

Itemized Cost Statement

ITEMIZED COST STATEMENT

CHARLOTTE SUMMARY - 332 October 25, 1990		
1	Domicile	$ 900.00
2	Wages	2,885.00
3	Field/Office Supplies	216.00
4	Helicopter	1,289.88
5	Assays: Rocks - 3 @ $13.50 each Soils - 10 @ $11.00 each Silts - 66 @ $11.00 each	876.50
6	Demobilization	2,140.74
7	Post-Field	3,000.00
8	**TOTAL**	**$11,308.12**

APPENDIX II

Summary of Personnel

SUMMARY OF PERSONNEL

Employee	Days	Day Rate	Total $
Colin Anderson	1	$250.00	$ 250.00
Eric Birkeland	1	$300.00	300.00
Heath Whittam	1	$190.00	190.00
Scott Thompson	1	$250.00	250.00
Lesley Wood	2	$240.00	480.00
Robert Viens	2	$200.00	400.00
Aaron Wardwell	1	$190.00	190.00
Gary Wesa	1	$325.00	325.00
Pat Wilson	2	$250.00	500.00
TOTAL:			**$2,885.00**

APPENDIX III

Analytical Procedure

ANALYTICAL PROCEDURE

The Bondar-Clegg analytical methods are described as follows:

Sample Preparation

Silt & Soil: Dry and sieve through 80 mesh screens. Gold values are determined on 30 gram, representative sample of minus 80 fraction by fire assay with AA finish; remaining elements are determined using 0.6 gram sample of minus 80 fraction by hot aqua regia digestion followed by ICP.

Rocks: Dry and crush to minus 150 mesh; analysis made on minus 150 fraction by methods described above.

Geochemical Analysis: Gold is determined on a test sample of 30 g using Fire Assay Lead Collection pre-concentration. The bead is dissolved in nitric acid and hydrochloric acid and run by Atomic Absorption.

Mercury is determined on a test sample of 0.6 g. The sample is digested by aqua regia and bulked to 12 ml. The solution is then run by Cold Vapour Atomic Absorption.

All other elements are determined on a test sample of 0.6 g. The sample is digested by aqua regia and bulked to 12 ml. The solution is then run by ICP.

Fire Assay Procedure for Au: A prepared sample of one assay ton (29.166 grams) is mixed with a flux which is composed mainly of lead oxide. The proportions of the flux components (the litharge, soda, silica, borax glass, and flour) are adjusted depending upon the nature of the sample. Silver is added to help collect the gold. The samples are fused at 1950 F until a clear melt is obtained. The 30-40 gram lead button that is produced contains the precious metals. It is then separated from the slag. Heating in the cupellation furnace separates the lead from the noble metals. The normal-sized precious metal beads that are produced are transferred to test tubes and dissolved with aqua-regia. This solution is analyzed using Atomic Absorption by comparing the absorbance of these solutions with that of standard solutions. In the case of high grade samples, the precious metal bead is parted to separate the silver and the remaining gold is weighed.

Comments: As part of the routine quality control we run a duplicate analysis for about 12% of the samples. Also, all samples which are over 0.20 opt on the original fusion are run again to verify the results. If a sample gives erratic results, such as 0.10,

0.020, 0.30, we will indicate this on the report. We suggest that a new split should be taken from the reject for preparation and analysis by our metallics sieve procedure. These assay results will always be signed by the registered assayer.

Contamination Prevention: The test tubes and cupels are used only once so that there is no possibility of cross contamination. The fusion crucibles are cleared before re-use by discarding any which had high samples in them. During the analysis a blank solution is run between each sample to ensure that there is no carry over.

Determination of Arsenic by Borohydride Generation:

Samples of 0.5 grams in weight are digested in borosilicate glass test tubes, with concentrated nitric and hydrochloric acids. These tubes are heated in a 90 degree Celsius water bath for two and one-half hours. The sample is then diluted with 14% HCl and mixed. A 0.5 ml aliquot is taken from this solution and HCl, deionized water, and potassium iodide are added. The resulting mixture is allowed to sit for one hour, after which it is run through a hydride generation system. In this system, the solution is reduced with sodium borohydride, releasing arsenic as arsine gas. The arsine gas is then swept into a quartz furnace mounted on a flame AA unit. The absorbance is recorded and compared to a standard series to determine the amount of arsenic present.

Quality Control: Standards, repeats, and blanks are run with each batch of samples. These are carefully checked, and reweighs of samples are ordered if necessary. High arsenic results are also checked by running the original solution by flame AA and comparing the results from the two procedures.

APPENDIX IV

Soil, Stream Silt and Rock Geochemical Lab Reports

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

BONDAR-CLEGG

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

Geochemical Lab Report

DATE PRINTED: 28-NOV-90

REPORT: V90-02394.0 | PROJECT: 332 | PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au 30g PPB	Ag PPM	Cu PPM	Pb PPM	Zn PPM	As PPM	Sb PPM	Mo PPM	Hg PPM
R2 90 GW 332 R-3585		<5	1.1	40	<2	43	24	<5	2	0.034
R2 90 GW 332 R-3586		<5	0.6	79	4	57	37	<5	1	<0.010
R2 90 GW 332 R-3587		12	1.2	25	14	24	24	8	9	<0.010
S1 90 PW 332 S-001		32	1.8	29	17	57	88	<5	9	0.135
S1 90 PW 332 S-002		47	1.1	29	47	61	99	<5	5	0.626
S1 90 PW 332 S-003		11	2.1	17	13	61	12	<5	7	0.271
S1 90 PW 332 S-004		5	2.0	16	9	45	10	<5	5	0.234
S1 90 PW 332 S-005		16	1.2	39	14	152	44	<5	5	0.107
S1 90 PW 332 S-006		14	7.8	75	62	170	366	48	10	0.176
S1 90 PW 332 S-007		18	2.5	104	62	133	109	<5	5	0.159
S1 90 PW 332 S-008		31	1.7	48	16	107	85	11	42	0.176
S1 90 PW 332 S-009		20	3.0	65	10	87	51	<5	21	0.299
S1 90 PW 332 S-010		<5	4.7	38	20	54	29	<5	14	0.179

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BONDAR-CLEGG

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

Geochemical Lab Report

REPORT: V90-02271.0

DATE PRINTED: 15-OCT-90

PROJECT: 332 PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au 30g PPB	Ag PPM	Cu PPM	Pb PPM	Zn PPM	As PPM	Sb PPM	Mo PPM	Hg PPM
T1 90 CC 332 L-001		16	1.8	78	17	166	70	9	4	0.094
T1 90 CC 332 L-002		<5	1.2	92	7	146	38	<5	3	0.090
T1 90 CC 332 L-003		6	2.1	92	14	201	103	<5	4	0.152
T1 90 CC 332 L-004		<5	1.3	68	6	95	50	<5	2	0.110
T1 90 CC 332 L-005		<5	1.0	63	<2	145	120	<5	6	0.094
T1 90 CC 332 L-006		<5	2.0	56	11	200	69	<5	5	0.120
T1 90 CC 332 L-007		11	2.2	66	25	175	87	16	6	0.092
T1 90 CC 332 L-008		<5	1.6	65	12	228	58	5	4	0.115
T1 90 CC 332 L-009		<5	1.7	40	12	147	25	<5	5	0.178
T1 90 CC 332 L-010		39	3.1	367	15	289	135	7	4	0.093
T1 90 CC 332 L-011		17	2.2	158	22	229	91	15	8	0.081
T1 90 CC 332 L-012		9	1.8	162	10	240	57	<5	5	0.105
T1 90 CC 332 L-013		9	2.0	149	20	263	80	14	11	0.057
T1 90 CC 332 L-014		11	1.8	132	14	256	52	<5	8	0.066
T1 90 CC 332 L-015		11	2.0	140	14	330	86	<5	30	0.142
L-016		n.s.								
T1 90 CC 332 L-017		10	1.9	137	19	367	63	8	21	0.128
T1 90 CC 332 L-018		18	2.5	236	29	818	67	<5	30	0.159
T1 90 CC 332 L-019		12	1.8	116	21	508	75	9	22	0.087
T1 90 CC 332 L-020		22	2.4	141	16	494	54	5	17	0.130
T1 90 CC 332 L-021		7	5.7	94	20	304	58	15	14	0.135
T1 90 CC 332 L-022		9	3.2	71	24	114	58	<5	6	0.158
T1 90 CC 332 L-023		14	2.0	116	17	420	59	8	16	0.066
T1 90 CC 332 L-024		<5	1.9	122	20	501	45	<5	17	0.090
T1 90 CC 332 L-025		13	1.6	118	14	481	47	<5	16	0.093
T1 90 CC 332 L-026		12	1.4	112	14	417	48	<5	16	0.079
T1 90 CC 332 L-027		6	1.7	120	16	448	48	<5	16	0.126
T1 90 CC 332 L-028		17	1.6	110	15	415	46	<5	15	0.076
T1 90 CC 332 L-029		11	1.9	127	18	407	56	5	15	0.148
T1 90 CC 332 L-030		12	1.7	95	22	364	72	15	13	0.097
T1 90 CC 332 L-031		9	1.8	101	29	394	76	14	17	0.073
T1 90 CC 332 L-032		7	1.4	104	15	378	48	<5	17	0.069
T1 90 CC 332 L-033		14	2.0	132	25	612	56	<5	22	0.113
T1 90 GW 332 L-001		7	3.9	80	15	246	71	14	22	0.060
T1 90 PW 332 L-001		<5	1.1	43	8	210	30	<5	3	0.046
T1 90 PW 332 L-002		188	2.8	137	71	491	154	23	9	0.090
T1 90 PW 332 (PRE)										
T1 L-003 MOSS MATT		24	2.5	161	43	318	100	19	6	0.089
T1 L-004 MOSS MATT		27	2.0	107	27	354	96	<5	4	0.094
T1 L-005 MOSS MATT		45	3.1	129	44	425	252	<5	7	0.088
T1 L-006 MOSS MATT		62	3.2	163	47	479	231	<5	7	0.135

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A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

Geochemical Lab Report

REPORT: V90-02271.0

DATE PRINTED: 15-OCT-90

PROJECT: 332

SAMPLE NUMBER	ELEMENT UNITS	Au 30g PPB	Ag PPM	Cu PPM	Pb PPM	Zn PPM	As PPM	Sb PPM	Mo PPM	Hg PPM
T1 L-007		72	3.1	120	77	534	282	<5	6	2.511
T1 L-008		146	3.3	170	59	423	234	<5	7	0.296
T1 L-009		78	2.9	128	72	495	243	7	7	1.135
T1 L-010		9	1.0	89	18	206	60	<5	3	0.165
T1 L-011		20	1.4	94	8	372	22	<5	4	0.176
T1 L-012	MOSS MATT	25	1.8	112	29	429	104	<5	12	0.271
T1 L-013		26	2.9	119	40	457	117	17	19	0.265
T1 L-014		9	2.7	127	26	483	98	17	48	0.126
T1 L-015		12	2.4	115	25	478	102	17	42	0.082
T1 L-016		23	2.6	114	27	499	109	16	36	0.142
T1 L-017		26	2.3	122	24	460	101	7	23	0.144
T1 L-018		6	2.1	111	23	296	99	18	19	0.066
T1 L-019		19	2.5	178	15	398	86	5	25	0.108
T1 L-020		9	2.6	144	22	429	92	6	35	0.112
T1 L-021		11	2.7	154	21	442	99	8	36	0.086
T1 L-022		<5	2.9	141	29	375	112	20	33	0.090
T1 L-023		<5	2.5	133	27	348	96	14	31	0.095
T1 L-024		6	2.1	124	18	357	88	6	26	0.065
T1 L-025		13	2.4	150	22	473	89	<5	30	0.094
T1 L-026		<5	2.5	160	21	471	80	5	32	0.106
T1 L-027		12	2.3	139	18	477	77	5	28	0.078
T1 L-028		20	3.1	169	15	534	85	<5	38	0.110
T1 L-029		17	3.0	155	16	487	72	6	30	0.111
T1 L-030		28	3.3	179	19	678	103	6	38	0.128
T1 L-031		9	3.8	176	16	607	77	<5	30	0.214
T1 L-032		9	3.3	158	24	568	94	15	29	0.198

APPENDIX V

Soil, Stream Silt and Rock Data Sheets

KEEWATIN ENGINEERING INC.

ROCK SAMPLES

Project: CHARLOTTE #332
Area (Grid):
Collectors: G.L. WESA

Results Plotted By:
Map: 104 B/7 NTS:
Date: SEPT 22, 1990 Surface ✓ Underground

SAMPLE NUMBER 90GLW332	LOCATION NOTES	REP. SAMPLE NUMBER	SAMPLE TYPE (LENGTH) GRAB	CHIP	CHANNEL	CORE	FLOAT	ROCK TYPE	SAMPLE DESCRIPTION	MAP SHEET
R3585	ELEV. 3300'	90GLW332	✓					SILTSTONE	1-2% dissem + cubic py; LIMONITIC SURF STAIN	
R3586	ELEV. 3150'	"	✓					TUFF (?)	Siliceous, QTZ-carb-ser-chlor alter'd; 1-2% fn diss py.	
R3587	ELEV. 3100'	"	✓					ARG. BRX	Cherty, cc-surf vns/vnlets. 5-10% fn diss py; frac-filling + stringer py; CARB altred, STOCKWK BRX	

Project: Charlotte 33c SO. JAM. Results Plotted By:

Area (Grid): 90 PW Map: N.T.S.:

Collectors: Patrick Wilson Date Sept 28, 90

Sample Number	Sample Location: ~~Line~~	Sample Location: ~~Station~~	Notes	Topography: Valley Bottom	Topography: Direction of slope	Topography: Hill Top	Topography: Level Ground	Vegetation: Heavily Wooded	Vegetation: Sparsely Wooded	Vegetation: Burnt	Vegetation: Logged	Vegetation: Grassland	Vegetation: Swampy	Soil Data: Horizon Sampled	Soil Data: Depth to Horizon Sample	Soil Data: Horizon Development: Good	Soil Data: Horizon Development: Poor	Soil Data: Parent Material: Drift	Soil Data: Parent Material: Bedrock	Soil Data: Colour
5001	3040'		10% Fmug 10% dg.											B	30					MRB
5002	3000'		10% Fmug 20% dg											B	30					MRB
5003	3000'		10% Fmug 10% dg											B	30					MRB
5004	3000'		10% Fmug 10% dg.											B	25					LRB
5005	3000'		15% Fmug 10% dg.											B	25					LRB
5006	3000'		10% Fmug 10% dg											B	30					MRB
5007	3000'		10% Fmug 10% dg											B	30					LRB
5008	3000'		30% Fmug 10% dg.											B	30					LRB
5009	3000'		10% Fmug 10% dg.											B	30					MRB
5010	3000'		10% Fmug 10% dg.											B	25					MRB

KEEWATIN ENGINEERING INC.

STREAM SEDIMENTS

Project: 392 - Charlotte — Results Plotted By: _____

Area (Grid): _____ — Map: _____ N.T.S.: 104B/7

Collectors: Colin Anderson — Date: Sept 22/90

Sample Number 9000 392	NOTES		SEDIMENT DATA					STREAM DATA					SPRING	DRY GULLY
			Gravel	Sand	Silt	Clay	Organic	Bank	Active	Width Meters	Depth c.m.	Velocity		
L001	Angular/Sub-Angular Frags, silt	3500'	30	30	40				Yes	1 m	10cm	Mod		
L002	Angular Frags, silt	3475'	40	40	20				Yes	1	15	slow		
L003	Angular Frags, silt.	3420'	20	20	40		20		Yes	1	10	slow		
L004	~~silt~~ Moss Mat	3350'			60		40		NO	1	10			dry
L005	sub-angular Frags, silt.	3325'	30	30	40				Yes	1	25	slow		
L006	Moss Mat	3325'			50		50		Yes	1	15	Mod		
L007	Moss Mat	3275'			70		30		Yes	1	10	fast		
L008	Moss Mat	3250'			50		50		Yes	1	10	fast		
L009	~~Moss Mat~~ silt	3175'	30	30	40				Yes	1-2	5	Fast		
L010	steep canyon, Talus Fines	3050'							Yes	1	10	Fast		
L011	sharp, angular Frags (creek joins at 2990 (350° flow))	3000	40	40	20				Yes	2-3	10	Fast		
L012	silt	2925'	50	40	10				Yes	1-2	10	Fast		
L013	silt	2850'	40	40	20				Yes	1-2	15	Fast		
L014	silt	2800'		50	50		[illegible]		Yes	1-2	10	Fast		
L015	silt.	2750'	40	40	20				Yes	1-2	15	Fast		
L016	Moss Mat	2675'			50		50		Yes	1-2	5	Fast		
L017	25m. to next station, silt.	2475'	40	40	20				Yes	1-2	10	fast		
L018	Talus Fines	2450'							Yes	1	15	Fast		
L019	Moss Mat	2375'			70		30		Yes	1	10	Fast		
L020	~~silt~~ Moss Mat	2300'			70		30		Yes	1-2	15	Fast		
L021	silt. Recent Landslide	2250'	25	25	50				Yes	1	15	Fast		
L022	~~Recent Landslide in area, silt.~~ B-Horizon, soil	2200'							Yes	1-2	15	Fast		
L023	Moss Mat	2125'			50		50		Yes	1-2	10	Fast		
L024	silt.	2100'	40	40	20				Yes	1	20	Fast		
L025	silt	2025'	10	30	60				Yes	1	10	Fast		
L026	silt	1975'	40	40	20				Yes	1-2	10	Fast		
L027	silt.	1950'	40	40	20				Yes	1-2	20	Fast		
L028	silt.	1900'	20	50	30				Yes	1-2	20	Fast		
L029	Moss Mat	1850'			50		50		Yes	1-2	20	Fast		
L030	silt.	1725'	10	10	80				Yes	1-2	15	Fast		

KEEWATIN ENGINEERING INC.

STREAM SEDIMENTS

Project: 392 - Charlotte

Area (Grid):

Collectors: Colin Anderson

Results Plotted By:

Map: N.T.S.: 104B/7

Date: Sept 22/90

Sample Number 90CC392	NOTES		SEDIMENT DATA					STREAM DATA						SPRING	DRY GULLY				
			Gravel	Sand	Silt	Clay	Organic	Bank	Active	Width	Depth	Velocity							
LC31	silt	1650'	40	20	40				Yes	1-2	20	Fast							
LC32	Silt Moss Mat	1560'			50		50		Yes	1	25	Fast							
LC33	Moss Mat	1500'	15	15	40		30		Yes	2-3	15	Fast							

KEEWATIN ENGINEERING INC.

STREAM SEDIMENTS

Project: Charlotte #382

Area (Grid): South Flowing Trib to Kisoc Creek

Collectors: JO 10 382

Results Plotted By:

Map: N.T.S.: 104 B/7

Date: Sept 22, 90

Sample Number	NOTES	SEDIMENT DATA					STREAM DATA					SPRING	DRY GULLY
		Gravel	Sand	Silt	Clay	Organic	Bank	Active Flow	Width	Depth	Velocity		
L001	3300' 0% Frag 30 cm depth		50%	50%		5%		S	1M				
L002	3260' 5% Frag 30 cm depth		50%	50%		5%		S	1M				
L003	3340' 0% Frag " —		10%	80%		25%		M	1M				
L004	3260' 0% Frag "		10%	80%		25%		S	1M				
L005	3200' 0% Frag "		10%	80%		25%		S	1M				
L006	3090' 0% Frag 30 cm		15%	85%		25%		M	1M				
L007	3080' 0% Frag 30 cm		40%	60%		/		S	1M				
L008	3040' " " 30 cm depth		50%	50%		/		S	1M				
L009	3000' " " 30 cm depth		15	85%		25%		M	1M				
L010	2920' " " 15 cm "		60%	40%		/		S	/				
L011	2820' " " 15 cm.		/	100%		/		S	1.3				
L012	2740' " " "		10%			/		M		Moss Mat.			
L013	2700' 30% Frag 20 cm depth		/			/		M	1.5				
L014	2650' 10% Frag 30% pebble 20 cm depth		60			/		M	1M				
L015	2600' 30% Frag 40% pebble 20 cm		30%					S	1M				
L016	2530' 30% Frag 40 % pebble 20 cm.		30%					M	1M				
L017	2460' — — 20 cm.		20%	80%				M					
L018	2400' (Minor fragment) 20 cm.		40%	60%				F	1M				
L019	2340' (Minor Frag) 20 cm.		40%	60%				F	1M				
L020	2270' 5% Frag. 15 cm.		40	55%				M	1M				
L021	2220' " 20 cm		60%	40%				M	1M				
L022	2150' Minor Frag. 20 cm		60%	40%				F	1M				
L023	2100' " "		50%	50%				M	1M				
L024	2040 20 cm.		50%	50%				M	1M				
L025	2040' [redacted] 15 cm.		30%	70%				S	2M				
L026	1990' 10% pebble 15 cm.		50%	40%				M	1.5				
L027	1920' — —		50%	50%				M	2M				
L028	1880' 15% Frag		60%	25%				M	2M				
2029	1790'		40%	60%				F	2M				
L030	1720'		50%	50%				M	2.5M				

KEEWATIN ENGINEERING INC.
STREAM SEDIMENTS

Project: Charlotte #382 Results Plotted By: KW

Area (Grid): Map: N.T.S.:

Collectors: Patrick Wilson & Heath Date: Sept 22, 90

Sample Number	NOTES	SEDIMENT DATA					STREAM DATA					SPRING	DRY GULLY				
		Gravel	Sand	Silt	Clay	Organic	Bank	Active	Width	Depth	Velocity						
L031	0% Frag. 0% org. 30 cm depth		60%	40%				F	1M								
L032	0% Frag 0% Hg 25 cm depth.		60%	40%				M	1M								

KEEWATIN ENGINEERING INC.

STREAM SEDIMENTS

Project: CHARLOTTE # 332

Area (Grid): HEADWATERS OF TRIB TO KUG CPK

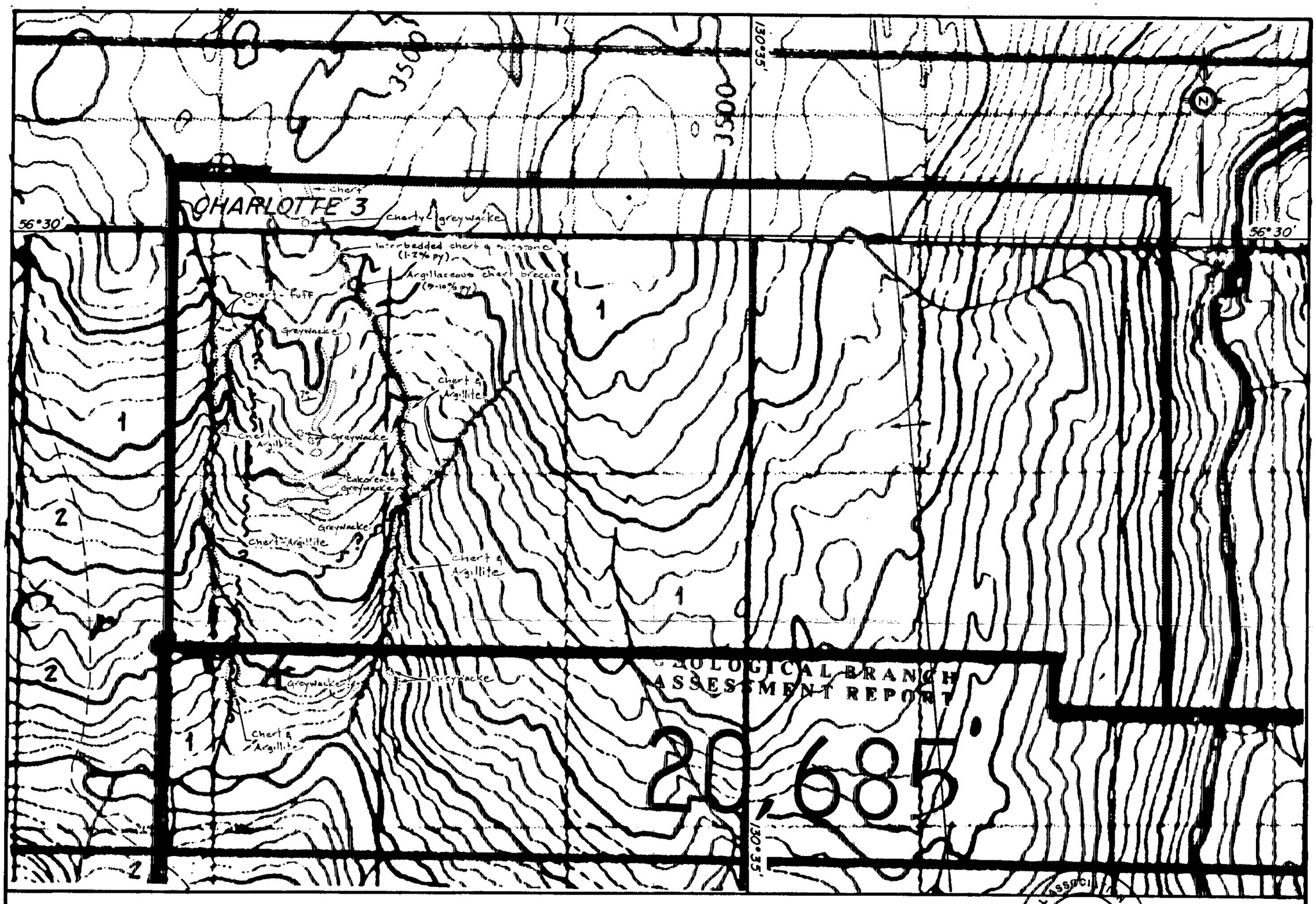
Collectors: G. L. WEISA

Results Plotted By:

Map: 104 B/7 N.T.S.:

Date: SEPT 22/90

Sample Number	NOTES	SEDIMENT DATA					STREAM DATA					SPRING	DRY GULLY	BEARING	COLOR		
		Gravel	Sand	Silt	Clay	Organic	Bank	Active	Width	Depth	Velocity						
90GW332L-001	3200' ELEV; INTERMD CHERT I SEST PORTION MOSS MAT.	30%	30%	25%		10		✓	15m	2-3cm	FAST			135°	DD		
									1								



Upper Triassic to Lower Jurassic
(Norian to Sinemurian)

2 Unuk River Formation; andesite sequence, green and grey, intermediate to mafic volcaniclastics and flows, with locally thick interbeds of fine-grained immature sediments, minor conglomerates, and limestone.

Upper Triassic
(Carnian to Norian)

1 Stuhini Group; Brown, black and grey, mixed sedimentary rocks interbedded with medium to dark green, mafic to intermediate volcanic and volcaniclastic rocks
CHARLOTTE PROPERTY: interbedded chert, argillite, siltstone, intermediate tuffs and massive greywacke

SYMBOLS

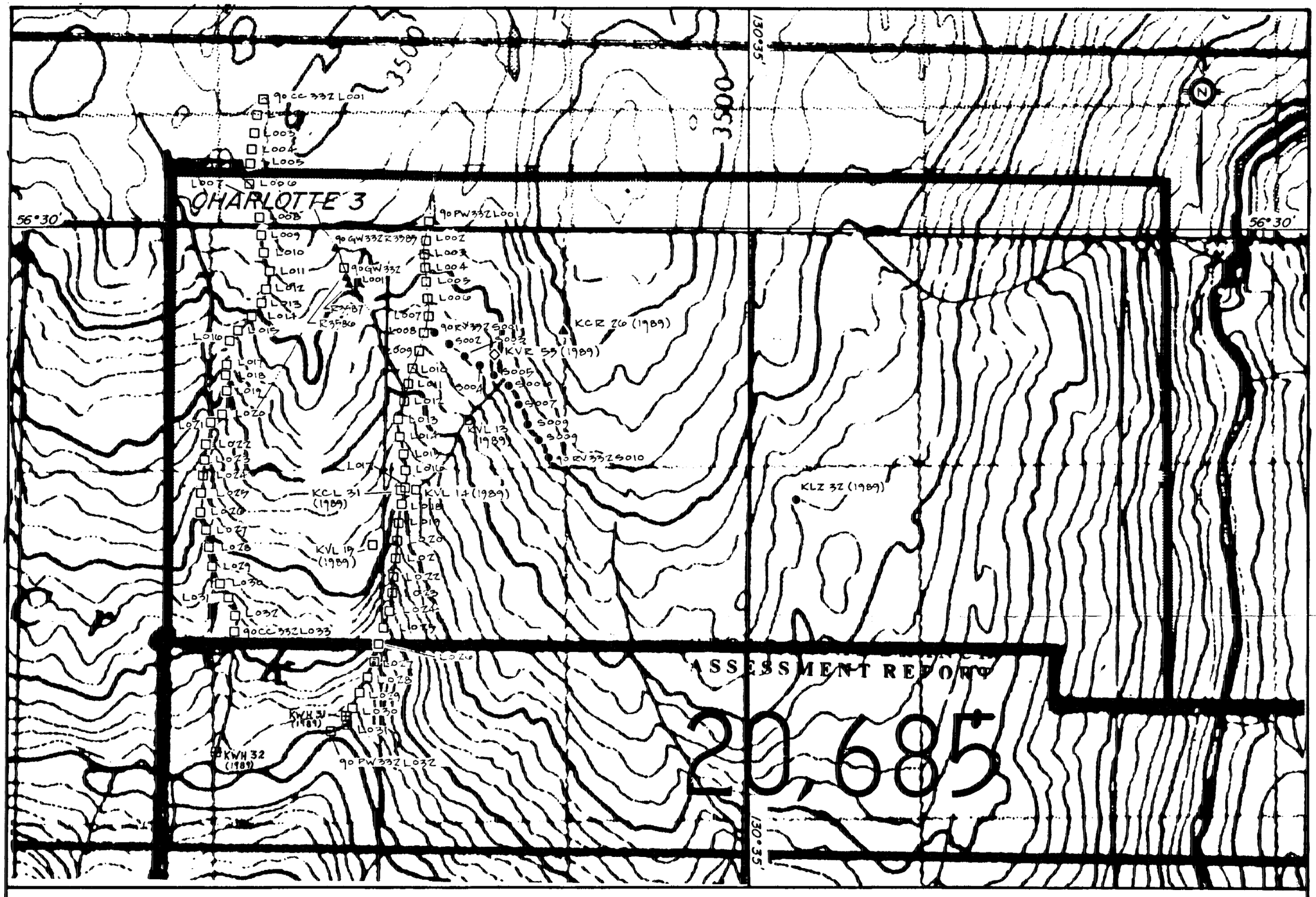
- Geologic contact
- Fault, assumed
- Regional anticline
- Outcrop boundary
- Bedding; inclined, horizontal

G. L. WESA
GEOLOGICAL ASSOCIATION OF CANADA
FELLOW

CANADIAN INDUSTRIAL MINERALS CORP.

CHARLOTTE PROJECT
GEOLOGY MAP

DATE: NOV. 1990	NTS: 104 B/7
PROJECT: 332	G. L. Wesa
SCALE: 1:10,000 (0 100 200 300 400 500 METRES)	
KEEWATIN ENGINEERING INC.	MAP No. 1



EXPLANATION

- ▲ Rock sample
- ◇ Float rock sample
- □ Silt sample
- ● Soil sample
- ⊞ Heavy Mineral Sample

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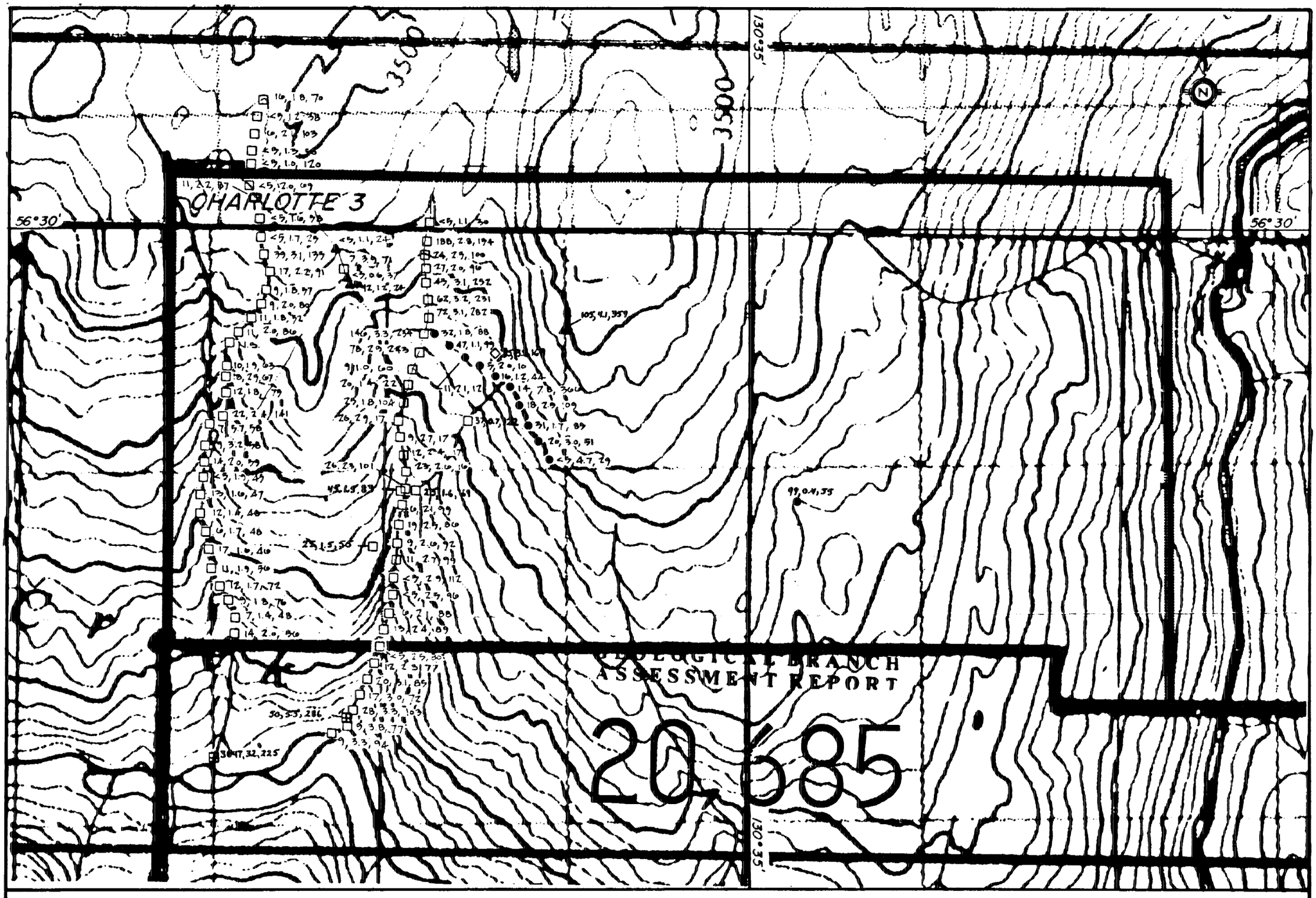
CHARLOTTE PROJECT
SAMPLE LOCATION

DATE: NOV. 1990	NTS: 104 B/7
PROJECT: 332	G.L. Wesa
SCALE: 1:10,000 (0 100 200 300 400 500 METRES)	
KEEWATIN ENGINEERING INC.	MAP No. 2



EXPLANATION

- ▲ Rock sample
- ◇ Float rock sample
- □ Silt sample
- ● Soil sample
- ⊞ Heavy Mineral Sample
- Au, Ag, As (Gold ppb, Silver ppm, Arsenic ppm)

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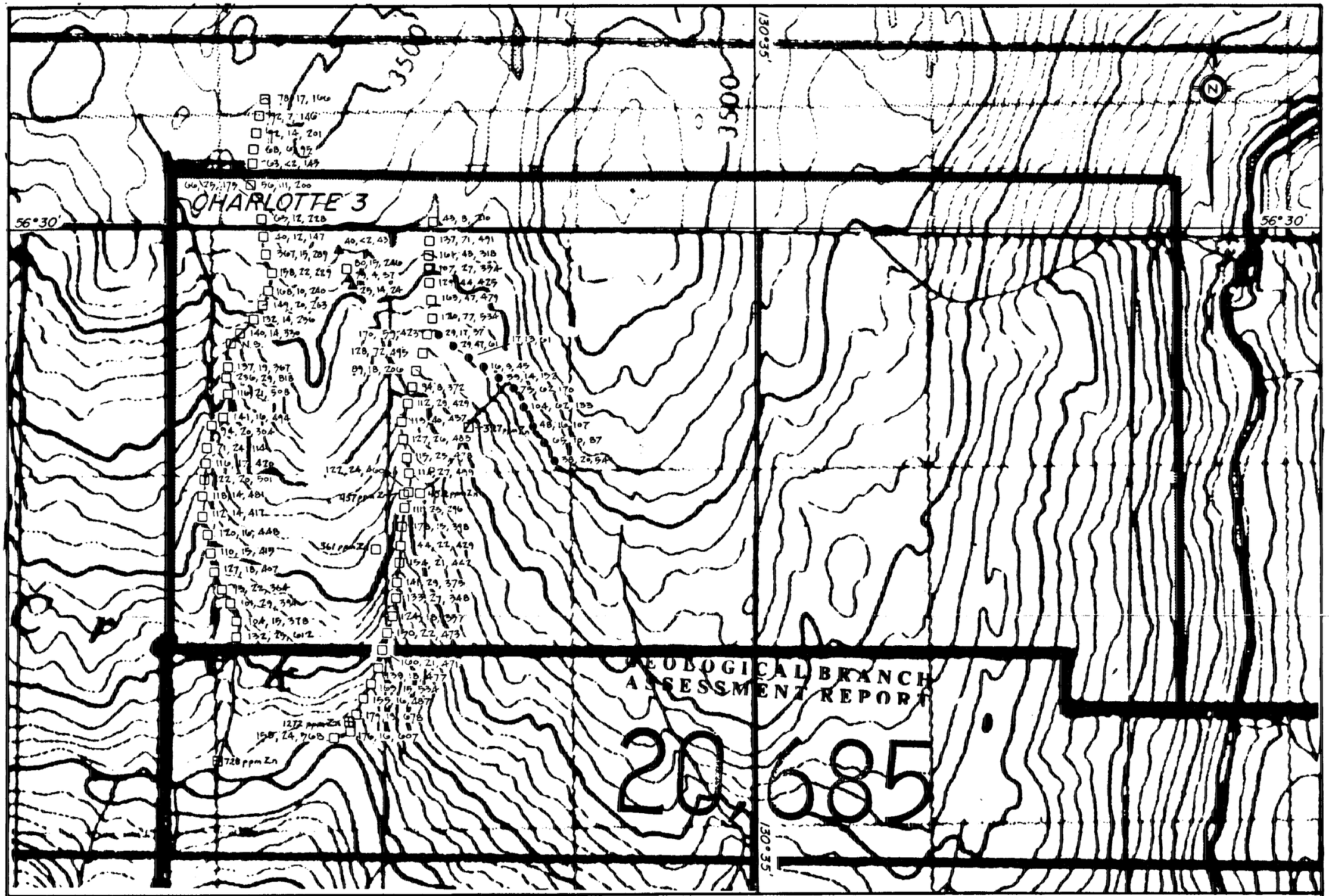
CHARLOTTE PROJECT
GEOCHEMICAL RESULTS
GOLD - SILVER - ARSENIC

DATE: NOV. 1990	NTS: 104 B/7
PROJECT: 332	G. L. Wesa
SCALE: 1:10,000 (0 100 200 300 400 500 METRES)	
KEEWATIN ENGINEERING INC.	MAP No. 3



EXPLANATION

- ▲ Rock sample
- ◇ Float rock sample
- □ Silt sample
- ● Soil sample
- ⊞ Heavy Mineral Sample

Cu, Pb, Zn (Copper ppm, Lead ppm, Zinc ppm)

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FELLOW

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CHARLOTTE PROJECT
GEOCHEMICAL RESULTS
COPPER-LEAD-ZINC

DATE: NOV. 1990	NTS: 104 B/7
PROJECT: 332	G.L. Wesa
SCALE: 1:10,000 (0 100 200 300 400 500 METRES)	
KEEWATIN ENGINEERING INC.	MAP No. 4