

GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORTS

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AN ASSESSMENT REPORT SUMMARIZING THE  
1996 PROGRAM OF GEOLOGICAL MAPPING  
AND GEOCHEMICAL SAMPLING ON THE  
HILLSBAR #4, SOLOMON, FLO-GOLD, HARRY & BAR-GOLD CLAIMS

HILLSBAR PROPERTY

NEW WESTMINSTER MINING DIVISION

LATITUDE: 49° 32'N. LONGITUDE: 121° 22'W.

N.T.S. 92 H/11W

6 KM. S.E. OF YALE, B.C. ON QUALARK AND SUKA CREEK.

PREPARED FOR OWNER:

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BOX 250,  
4927 LAUREL ROAD,  
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FILMED

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GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT

24,731

1. SUMMARY:

Two consultants and two assistants visited the Hillsbar #4, Solomon, Bar-Gold, Flo-Gold and Harry claims over the period of July 6 to November 15, 1996. Helicopter support was used to access the area in order to conduct geological mapping and geochemical surveys. A total of 176 samples were collected - soils, stream sediment and rock chip/channel samples. This program was designed to 1) locate the old Hillsbar Mine adit and complete the mapping and sampling along Qualark Creek between the suspected Hillsbar Mine adit location (the one noted for its limited historical production) and the last point along the creek where mapping terminated in previous programs. 2) locate and define the cause of the gold anomalies from soil samples taken by previous operators on the old Holly Claims located on the southeast corner of the Hillsbar #4 claim and the junction area with Solomon, Flo-Gold and northern Edgar claim. 3) Examine and sample quartz biotite and pegmatitic quartz feldspar dykes where they intrude Hozameen metasediments on the northwestern part of the Harry claim, and 4) Map and sample in the vicinity of weak soil sample anomalies located during an exploration program conducted in Sept. of 1990 along a logging road on the Bar-Gold claim. The anomalies are associated with rusty weathering pyritic shear zones in Custer Granite to Granodiorite Gneiss.

Geological mapping indicates the Hillsbar #4, Solomon, Edgar, Flo-Gold and Louise claims area is underlain by northwest trending, moderately deformed, interbedded and structurally interbanded pelites of the Hozameen Group. The Hozameen Group comprises three mappable subdivisions, including; Unit A1 - phyllite, schist and slate; Unit A2 - chert with subordinate pelite bands; Unit A3 - greenstone with tuffaceous bands. The Hozameen Group rocks are extensively fractured and are cut by north and northwest - trending shear faults. Weakly pyritic quartz veins and veins are common on low and high angle dilatant zones in the pelitic units. In the southeastern portion of the Hillsbar #4 and the Solomon claim, phyllitic units, chert and greenstone units are intruded by north and northwest - trending quartz porphyry dioritic dykes. These rock trend southeastward onto the Flo-Gold and Louise claims. These dykes are assumed to be related to the Eocene aged,

Mount Outran Plutons and appear to stope fault zones located west adjacent to the Hozameen Group - Coquihalla Serpentine Belt fault contact. Aplite dykes are common on the Hillsbar #4 claim particularly along Qualark Creek and may be associated genetically with lenticular intrusions of granodiorite also presumed to be dyke offshoots of Mount Outran Plutons. The granodiorite to diorite intrusions are prominent in the southeastern portion of the Hillsbar #4, Solomon and Edgar claims (old Holly Zone) and easterly onto the Flo-Gold claim. They trend in the same NW direction that the quartz porphyry dykes to dioritic dykes and aplite dykes found in Qualark Creek do and are part of the Hillsbar Shear Zone that trends northwesterly from the Louise claim to the old Hillsbar adit workings (examined in 1993) on Qualark Creek. These intrusions are accompanied by strong argillic alteration and silicification. Silt and soil sampling in the vicinity of these intrusions and associated faults and contact areas with the Hozameen metasediments and metavolcanics often yield weak to moderately strong gold geochemistry signatures. Soil samples that were taken in the vicinity of the most intensely altered (argillic and silica) feldspar porphyry diorite to granodioritic dykes in the southeast Hillsbar #4 claim yielded values ranging from 13 to 1664 ppb gold (L100+00E to L103+00E) while rock chip samples taken in the same area across altered and unaltered intrusives and metasediments during the program this year carried only trace values in gold.

Silt sampling in Qualark Creek yielded one sample (96004) giving a weak gold anomaly of 21 ppb gold and a second sample (96006) giving a moderate strength anomaly of 110 ppb. Sample 96006 is located adjacent to a contact zone between a feldspar porphyry diorite dyke and meta-chert of the Hozameen Fm. while sample 96004 is located adjacent to a NE trending fault in meta-chert of the Hozameen Fm.

Rock chip sampling on the precipitous terrain of the northern part of the Harry claim outlined an area of extensive dyking with a lace like network of quartz - biotite granitic dykes to quartz feldspar porphyry to pegmatitic textured (+/-pyrite) dykes of random attitudes. The dykes, when mineralized, carry 1 - 2% fine grained disseminated pyrite. The dykes appear to intrude foliated schist (metasediment) and in the case

of sample 96001 the dyke intrudes a brecciated hornblende porphyry diorite host. The assay results of the three rock chip samples taken (96001 - 96003) yield below detectable limits for gold. Although the results are not encouraging, the area should be prospected more closely (if safe access can be attained) where the dykes come into close proximity to the Hozameen fault.

Mapping and sampling was conducted on the Bar-Gold and western Edgar claim area over two very rusty gossanous zones that cross an the old grown in mainline logging road. This work was primarily directed towards the delineation and definition of a weak soil geochemical anomaly (QC Zone) which was discovered in 1990 on the old John claim. A single sample yielded a 21 ppb gold assay. Several samples trending away (NW and SE) from the 21 ppb gold sample carried values ranging from 4 to 6 ppb gold before background values of 1 ppb gold persisted. A rusty gossanous zone in dark grey green Custer Gneiss underlies this anomaly while the majority of the Bar-Gold claim is underlain by fresh lighter grey coloured often pegmatitic textured Custer Biotite Granite Gneiss. The gossan and sulphide (disseminated pyrite) mineralization appears to be related to shear zones emanating from north - south trending faults running parallel to the Hope Fault on located west of the property (immediately west of the Fraser River near Yale). A second rusty gossan zone (SC Zone) was discovered this year on the Bar-Gold claim near its southern boundary in the vicinity of Suka Creek. Geological mapping and soil and rock chip geochemical sampling was conducted in this new area. Sulphide mineralization in the form of disseminated pyrite, pyrrhotite and minor chalcopyrite is associated with quartz veining and silicification along a shear zone that has now been traced for approximately 300 meters.

The 1996 rock chip and soil sampling in the vicinity of the 1990 21ppb anomaly (QC Zone) did reproduce the original anomaly yielding a high of only 6 ppb gold in soils. The newly discovered rusty (oxidized) pyritic shear zone (SC Zone) located south of the 1990 (QC Zone) anomaly described above yielded no anomalous soil or rock samples. A very weakly anomalous zone occurs in the center of the very southern portion of the oxidized zone but values are in the 2 to 6 ppb gold range

(Samples SC/R9, SC/S19, S20, S23, S24). Although sulphide mineralization in the form of disseminated pyrite, pyrrhotite and minor chalcopyrite occurs in seams or lenses of silicified shear zone material in the Custer pegmatite gneiss, it does not appear to carry significant gold mineralization.

The author concludes that the two anomalous silt samples in Qualark Creek reflect a gold source in adjacent contact zones between silicified and quartz veined metasediments and intrusive dioritic to granodioritic dykes. Aplitic dykes that are associated with the granodioritic dykes should also be examined more closely along their contacts with the host metasediments. Channel sampling across the contact zones and across areas of intense veining and silicification in both the metasediments and dykes should be carried out. The search for the covered portal of the Hillsbar Mine adit should continue so as to be able to map and sample the numerous veins (including the #3 vein) that were encountered in the drift. Mechanical means should be considered to help locate the portal.

Further work is required on the grid established on the SE Hillsbar #4, Solomon and Flo-Gold claims intersection area. The strong soil geochemical anomaly that is located over the apparent widest portion of a multi-phase dioritic to granodioritic dyke system requires further definition. The anomaly appears to be caused by gold accumulation in soils located below bluffs of intensely silicified and argillically altered feldspar porphyry diorite to granodiorite dyke. The dykes have intruded along a major northwesterly trending fault/shear zone (Hillsbar Shear Zone) that cut Hozameen metasediments and metavolcanics. The gold may be associated with the alteration and silicification events or may be confined to the shear zone itself. Channel sampling (by plugger drill) across both the altered dykes and fault zones as well as in the contact zone between the dykes and metasediments should be carried out. The grid should be extended to the east across the Flo-Gold claim and to the west and south onto the Edgar claim. Detailed mapping and geochemical sampling should be carried out on the extended grid. This extensive structure exhibits good potential to host economic gold in shear zone and quartz vein style deposit.

The QC and SC Zones on the Bar-Gold claim do not appear exhibit strong potential for hosting gold mineralization, however a small sampling program is recommended to be carried immediately west of the present QC Zone grid to further check the 1990 21 ppb gold anomaly. No other work is recommended however the claim should be retained in groupings from work on other claims to protect the boundary of the Hillsbar #4 and the other important claims to the east.

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## **2. INTRODUCTION:**

Two consultants and their assistants travelled from Vancouver to Hope at 4 different time periods spanning late July to November 15, 1996 to conduct exploration work the Hillsbar Property consisting of 14 mineral claims made up of 188 units. Access to all the area is confined to helicopter from Hope as all the old logging road access has been removed by thick overgrowth and numerous large landslides. Small fly campsites are also difficult to establish because of thick second growth on old extensive clear cuts and on the old logging roads and log landings.

The first program commenced on July 26, 1996 by mobilizing to Hope and then by Helicopter to Qualark Creek. This part of the program examined a dyke and quartz veined zone on the north side of a steep cliff headwall area at the headwaters of Kuthlath Creek on the Harry claim. Mapping and stream sediment sampling was conducted along Qualark Creek in the vicinity of the historical Hillsbar Mine adit and camp which has been covered by logging debris. This program was done to hopefully locate the old adit as well as to examine related gold bearing quartz veins. Other gold bearing veins have been discovered further upstream in the vicinity of a smaller Hillsbar 3 vein adit as a result of exploration along Qualark Creek in the last few years. This work was conducted from a camp located on a brushed out area along the old logging road on the north side of Qualark Creek (Figure 6). A total of 1 rock chip and 4 stream sediment samples were taken. A day was spent along headwater cliffs (cirque) of Kuthlath Creek on the Harry claim to investigate a zone of intense dyking and accompanying quartz veining (Figure 5). Three (3) rock chip samples were taken which yielded only trace amounts of gold. This steep and treed area was accessed with difficulty by helicopter as open landing sites were not readily available. Time was also spent brushing out two camp sites for the second program to come on the Flo-Gold and Hillsbar #4 southeast claim area.

The second program commenced on Sept. 6, 1996 with the mobilization of a fly camp into a camp site and helicopter pad that was previously

brushed out (during the first program) along an old logging road located on the south side of Qualark Creek near the southeast corner of the Hillsbar #4 claim and the Solomon claim and western part of the Flo-Gold (Figure. 7 ) claim. This area is on the north facing side (towards Qualark Creek) of the ridge that separates the Qualark and Suka Creek drainages. This program was designed to evaluate, by mapping and geochemical soil and rock chip sampling, areas anomalous in gold that were established by previous exploration programs on the Holly claims (long since lapsed and now covered by the Edgar, Solomon, Hillsbar #4 and Flo-Gold claims). No follow up evaluations of this strongly anomalous area had been done by previous operators. During the 1996 program a 5 line grid was established over the area of interest using a compass and distance chaining machine. Soil samples were taken at 25 meter intervals and rock chip samples were taken where outcrops occurred. Sampling and geological mapping was also conducted along the old grown in logging roads. The roads were tied in to the grid. This program was completed on Sept. 10,1996.

The third program commenced on Sept. 20 1996. The camp was mobilized by helicopter back into the campsite that was established for the second program described above. This program was a continuation of the second program. The remaining grid lines were geologically mapped and soil sampling continued at 25 meter interval along the lines. A total of 40 rock chip samples and 33 soil samples were taken during the second and third programs.

The fourth and final program commenced on Oct. 28,1996 on the Bar-Gold claim and ended on November 15,1996. Although the program was carried out in six field days, it could not be carried out on consecutive days due to poor weather conditions which prevented the helicopter from flying personnel to the exploration site. This program was designed to assess a weak gold anomaly (QC Zone) found in rock and soil samples that were taken in a 1990 exploration program conducted on the John claim

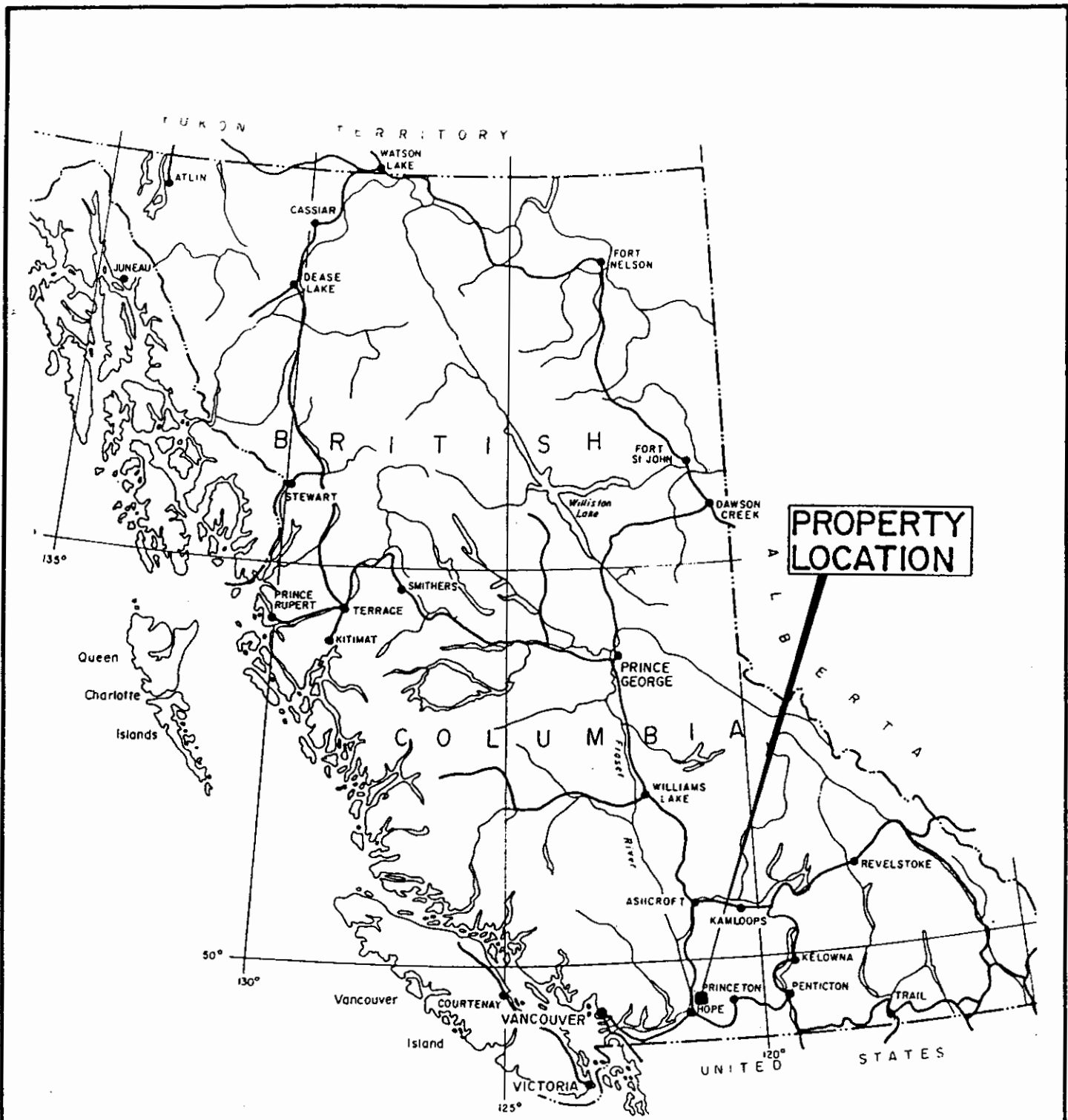
(currently the Bar-Gold claims). This anomalous area (although a weak 21ppb gold) is located in a very rusty gossan zone that appears to be associated with shearing and veining within gneissic intrusive rocks

believed to belong to the Custer Gneissic complex. This program was extended to incorporate a new rusty gossan zone that was discovered by the consulting geologist while flying in to conduct the work on the above described weakly anomalous gossan. This zone (SC Zone) was observed to extend for approximately 300 meters NS along strike and to be 30 to 40 meters wide. The QC and SC zones were geologically mapped at a scale of 1:2000 and soil and rock chip samples were taken along the various traverses (Figures 8 & 9). A total of 31 rock chip samples and 64 soil samples were collected during this program.

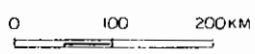
This report summarizes the Hillsbar property geology, soil geochemical and lithogeochemical sample results for gold on detailed areas of study on the Hillsbar #4, Solomon, Flo-Gold Harry and Bar-Gold claims (see Figures 6 to 9).

**3. LOCATION AND ACCESS:** (Figures 1 & 2) The Hillsbar Property consisting of the 14 Hillsbar claims (188 units) are centered on Qualark Creek, east of the Fraser River, located 5 Km. in a straight line southeast of Yale township, B.C. and 19 Km. north of Hope, B.C.. The claims on which the assessment work programs were carried out, the Hillsbar #4, Solomon, Flo-Gold and Harry, themselves are centered around Qualark Creek while the Bar-Gold claim lies at the western edge of the property and borders on the Fraser river between the mouths of Suka and Qualark Creek and is centered on NTS co-ordinates of Latitude  $49^{\circ} 31'N$  and Longitude  $121^{\circ} 24.1'W$ . The Harry claim lies to the north of Hillsbar #4 claim and covers the north side of Qualark Creek and partly straddles the headwater cirque of Kuthlath Creek. The area lies within N.T.S. sheet 92 H/11W, at Latitude  $49^{\circ}32'N$  and Longitude  $121^{\circ}22'W$ .

Access to the claim is by helicopters operating from nearby bases in Hope and Agassiz. A network of logging roads dating to the early 1980's exists along major west flowing creeks on the Hillsbar Property, however; these have been washed out in numerous locations, cut banks are eroded and landings and right of ways are densely overgrown with alder. These roads are useful as trails but would require rehabilitation for use by a.t.v.'s or 4 x 4 vehicles, due to the thick alder growth and steep terrain. The bridge across Qualark Creek, on the eastern boundary



**PROPERTY  
LOCATION**



MIKE BRADLEY & ASSOCIATES		
HILLSBAR GOLD INC. HILLSBAR PROPERTY		
<b>LOCATION MAP</b>		
SCALE AS SHOWN	NTS. 92H/11W	FIGURE NO. 1
DRAWN BY: B.L.	DATE: NOV 1996	

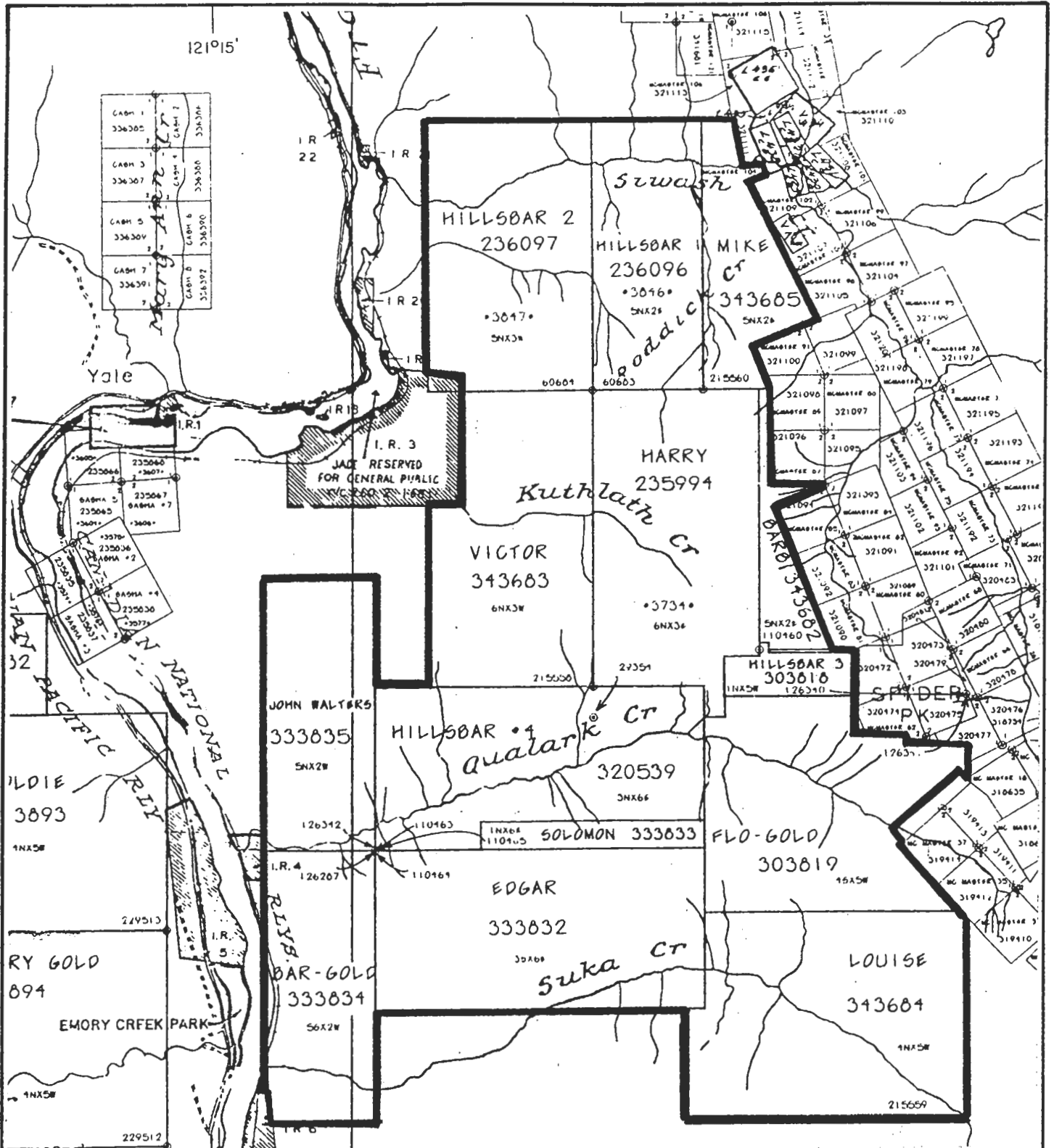
of the Hillsbar #4 claim, has been washed out. The mainline access from Hope to Qualark Creek is driveable by 4 x 4 vehicle to a point several kilometers south of Suka Creek. The rest of the mainline logging road is grown in with thick alder growth or severed by numerous washouts. Hope is located at the junction of highways 1, 3 and 5 and is a major logistical center for rail traffic, logging and tourism in the area. The Canadian National Railway is located on the east side of the Fraser River and passes over Qualark Creek where it enters the Fraser. Electrical power is available at Yale, on the west side of the Fraser River.

4. **CLAIMS STATUS:** The Hillsbar Property lies within the New Westminster Mining Division and consists of 14 claims totalling 188 units (Figure 2). Upon acceptance of this report, submitted in support of work credits of at least \$25,600.00 filed on Nov. 28, 1996, one years assessment is applied on fourteen claims as follows:

CLAIM NAME	REGISTRATION NUMBER	UNITS	ANNIVERSARY DATE
Hillsbar #4	320539	18	Aug. 30, 1997
Victor	343683	18	Feb, 13, 1998
Hillsbar 2	236097	15	Jan. 18, 1998
Hillsbar 1	236096	10	Jan. 18, 1998
Solomon	333833	6	Jan. 28, 1998
Flo-Gold	303819	20	Sept.10, 1997
John Walters	333835	10	Jan. 28, 1998
Bar-Gold	333834	10	Jan. 28, 1998
Edgar	333832	18	Jan. 28, 1998
Hillsbar 3	303818	5	Sept.10, 1997
Harry	235994	18	Sept.17, 1997
Mike	343685	10	Feb. 13, 1998
Barb	343682	10	Feb. 13, 1998
Louise	343684	20	Feb. 13, 1998
	TOTAL	188	

All of the above claims are owned by Hillsbar Gold Inc. of Sechelt, B.C., who paid for the work completed in the 1996 program of work on the Hillsbar #4, Solomon, Flo-Gold, Harry and Bar-Gold claims.

5. **HISTORY:** The area of interest first gained prominence with the discovery of placer gold on the Fraser River in 1856. Rapid mining of gravel bars along the River had recovered most of their wealth prior to



MIKE BRADLEY & ASSOCIATES

HILLSBAR GOLD INC.  
HILLSBAR PROPERTY

**CLAIM MAP**

SCALE 1:50,000	N.T.S. 92H / 11W	FIGURE NO. 2
DRAWN BY: B.L.	DATE: NOV. 1996	



1874 when government commenced recording production. The presence of a higher percentage of coarser gold in the gravels adjacent to Yale, notably at Hills and Emory Bars, suggested a local source in the area. Intense prospecting of tributary creeks in the early 1870's produced small yields along Hidden, Siwash, and Hillsbar (now Qualark) creeks and colours in the Skagit River area and in tributaries of the Nahatlatch River.

By 1911 placer activity extended along the Coquihalla River and tributaries Ladner, Fifteen Mile, Sowaqua, Peers and Nine Mile creeks. Lode prospecting accompanying the placer mining lead to discovery of gold-bearing quartz veins in Siwash Creek valley in 1891 and the Roddick (1901), Ward (1905), Marvel (1906), Emigrant (1911), Emancipation (1915), and Aurum (1919) properties, in what came to be known as the Coquihalla Serpentine Belt. The belt was recognized in 1927 and actively prospected, after high-grade gold was found associated with serpentine on the Aurum property. Five properties in the belt produced 3,102 tons of ore containing 3,117 oz. of gold in the period 1916 - 1942.

Gold-bearing quartz veins were located on Qualark Creek in 1921 and staked as the "Gold" claim. By 1927 three tunnels were present, the longest had been driven 60 m. and crosscut 6 well defined quartz veins. Government sampling of the No. 3 vein in 1927 averaged \$20.00/ton across 3 feet or 0.968 oz Au/ton (1927 price = \$20.67/oz). Another sample collected across 3 feet ran 0.82 oz Au/ton.

The Qualark Creek area appears to have had little exploration from 1930 to 1974.

In 1975 Caroline Mines Ltd. optioned the Hillsbar property, conducted geological mapping, geochemical sampling and test pitting, then dropped

the option in 1977. No assessment report is on file for this work.

In 1979 Cochrane Consultants surveyed and sampled the Hillsbar Adit and conducted a magnetometer survey over 2 east-west lines, following the logging roads located north and south-adjacent to Qualark Creek.

In 1982 the Hillsbar property was restaked as the Seka claims and Mix Resources Ltd. conducted soil sampling over 8.3 line kilometers of grid. The survey "indicated two possible zones of mineralization" (Sauer, 1982) but the report does not accurately locate the zones on maps.

In 1984 and 1985 extensive soil sampling and geological mapping was

undertaken on the Holly claims, which covered the ground south of the Hillsbar Property from the ridgeline between Qualark and Suka Creeks, south across Suka Creek. Despite encouraging geochemical results no further work was recommended. This was an area of focus in the 1996 program.

In 1990 H. Nicholson conducted a soil sampling and geological mapping traverse within the Harvic Group, along the Qualark Creek logging road from the western portion of the Al #1 (now Hillsbar #4) claim, southwest through the John claim (now Bar-Gold). Three small zones of elevated gold values in soils were located in areas underlain by Custer Gneiss/schist.

In 1991, the author conducted geochemical sampling and geological mapping within and west of Hillsbar Adit on the Al #1 (now Hillsbar #4) claim. Followup of several gold in soil anomalies was recommended.

In 1992, the author conducted geochemical sampling, geological mapping and magnetic survey on the Flo-Gold claim. Additional geochemical targets were generated for followup. In 1993 geological mapping, soil sampling and chip sampling of the anomalies generated in the 1991 and 1992 program. The Hillsbar adit and veins along the adjacent Qualark creek were mapped and sampled in detail.

5. **PHYSIOGRAPHY:** The Hillsbar property is located in the Cascade Mountains. The terrain of the Hope map sheet is steep and rugged, with average elevations of 1220 m. Intense glaciation occurred in the area during the Pleistocene age. Mountains below 1830 m lay below the ice sheet and were rounded. Glaciation of valleys produced cirque headwalls and truncated spurs, U - shaped profiles and hanging side valleys; these features were further modified by recent temperate erosion. Much of the drainage pattern in the map sheet is controlled by north, northwest and northeast trending, structures dominated by the Fraser Fault System, which has controlled Fraser River's watercourse above Hope.

The Hillsbar property extends from Suka Creek in the south to Siwash Creek in the north. Local mountains have elevations of approximately 1433 m, trend north and northwest and have rounded ridgelines above 1220 - 1370 m elevation. The mountains are deeply dissected by arcuate-shaped creeks draining northwest, to the east of the claims and west to southwest, within and west of the claims. The creeks occupy steeply U -



shaped valleys with side slopes averaging 45°-50°. Qualark and Siwash creeks pass through steep canyons, near their mouths at Fraser River. The western portion of the Victor claim covers a large, steep, west to northwest - trending cirque headwall, forming a portion of the Fraser Canyon above Yale.

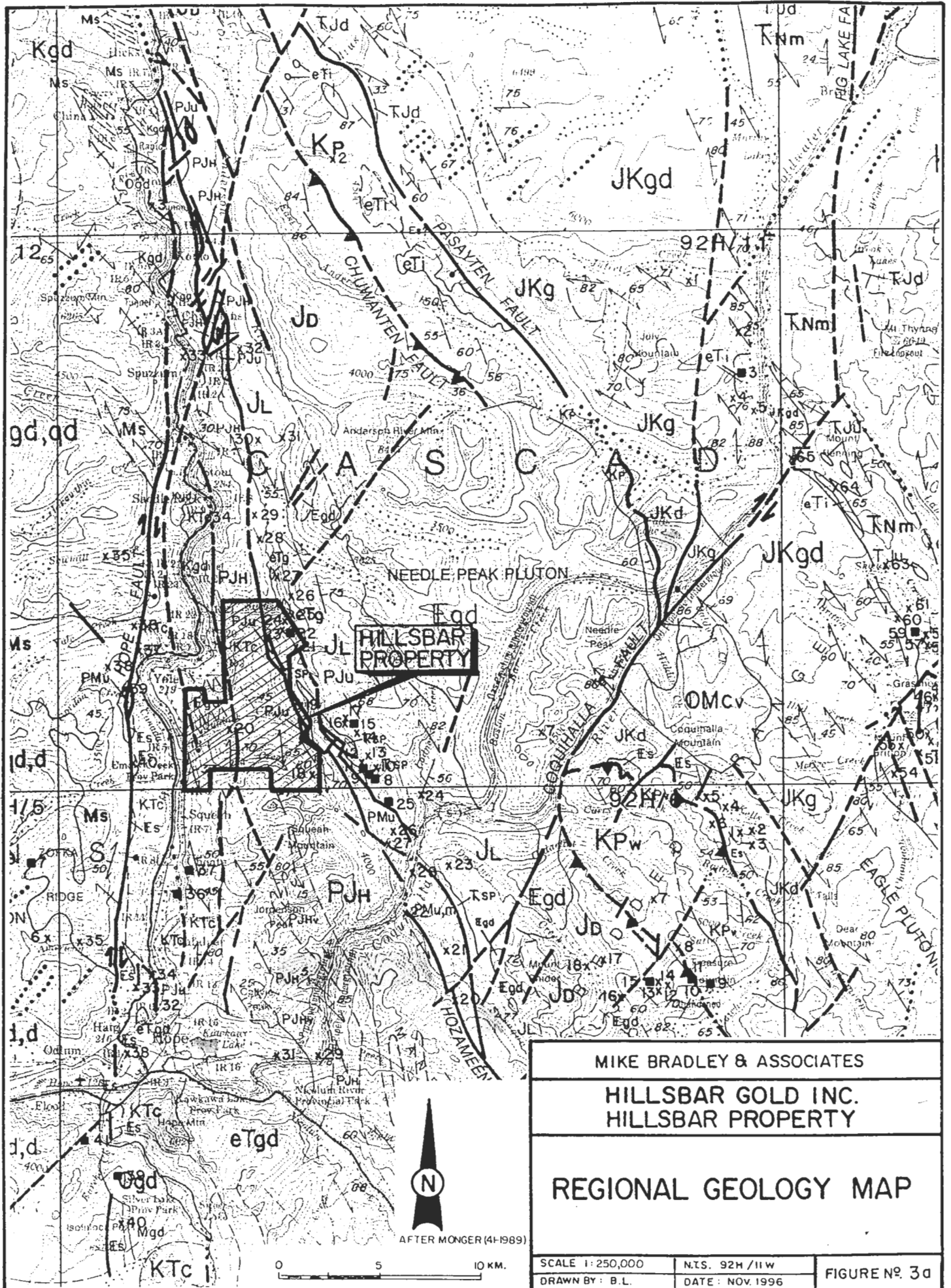
The valleys of Qualark Creek and Suka Creeks were visited in the current study as well as the ridge between the two above mentioned creeks. Outcrop is common at creek level and above 920 m, perhaps averaging 30% by area. Below approximately 920 m elevation the creeks have cut through a flat lying sequence of unconsolidated gravel, silt and sandy beds. These fluvial deposits may originate with Fraser River which subsequently cut to deeper levels in the Fraser Canyon due to tectonic uplift or post Pleistocene isostatic rebound. The sediments extensively mantle the steep bedrock paleotopography below 920 m elevation with perhaps 5 - 10% outcrop exposure located in creek beds and in other erosional windows.

Qualark Creek valley and part of Suka Creek valley was clear cut below 1220 m elevation in the early 1980's. High rainfall in the area has resulted in significant erosion of the steep slopes. A dense undergrowth of salal, devil's club and alder, together with young cedar and Douglas Fir, is revegetating areas adjacent to the active slides. Both creeks are choked at intervals with log jams and rock debris. S

Survey progress is hampered by steep, slippery terrain and the debris from logging and erosion.

#### **7. REGIONAL GEOLOGY: (SEE FIGURE 3a & 3b)**

The geology of the Hope area was mapped in portions by the G.S.C. and graduate students of the University of B.C. in the period 1912 - 1969 and described in G.S.C. Paper 69-47 (Monger, 1969). The B.C. Department of Mines mapped the Coquihalla Gold Belt in the period 1982-1984; this work is described in B.C.M.E.M.P.R. Papers 1982-1, 1983-1, 1984-1 and 1985-1 (Ray, G.E.) and summarized in B.C.M.E.M.P.R. Open File Maps 1986/1A to 1G at a scale of 1:20000. Monger (1989) remapped parts of the Hope map sheet in the period 1984-1986 and compiled this work with that of numerous other authors in G.S.C. Map 41-1989, at a scale of 1:250000 (Figure 3a & 3b).



MIKE BRADLEY & ASSOCIATES		
HILLSBAR GOLD INC. HILLSBAR PROPERTY		
<b>REGIONAL GEOLOGY MAP</b>		
SCALE 1:250,000	N.T.S. 92H/11W	FIGURE No. 3d
DRAWN BY: B.L.	DATE: NOV. 1996	

# LEGEND FOR REGIONAL GEOLOGICAL MAP

Formal names capitalized

CENOZOIC	QUATERNARY PLEISTOCENE AND RECENT		Thin drift, alluvium, glacioluvial and lacustrine deposits, alluvium landslides
	TERTIARY		
	MIOCENE	<b>Mgd</b>	Granodiorite (MOUNT BARR BATHOLITH)
	LATE OLIIGOCENE TO EARLY MIOCENE	<b>OMCv</b>	COQUIHALLA FORMATION: intermediate, felsic pyroclastics and flows
	OLIGOCENE	<b>Ogd</b>	Granodiorite (CHILLIWACK BATHOLITH)
	Eocene	<b>Egd</b>	Granodiorite (NEEDLE PEAK, MOUNT OUTRAN PLUTONS)
		<b>Es</b>	Sandstone, conglomerate, argillite (includes ALLENBY FORMATION of PRINCETON GROUP)
	EARLY TERTIARY	<b>eTgd,i</b>	Intrusions of granodioritic (gd) and intermediate (i) composition
	CRETACEOUS AND/OR TERTIARY		
		<b>KTc</b>	CUSTER GNEISS: pegmatitic granite gneiss; pelitic schist and amphibolite, minor marble and ultramafic rocks, probably derived mainly from lower Mesozoic and possibly Paleozoic and (?) Precambrian rocks, and metamorphosed in Late Cretaceous and early Tertiary time
		<b>Ms</b>	Garnet-biotite, staurolite, kyanite and sillimanite schist (in part, SETTLER SCHIST), local amphibolite, minor ultramafic rock and siliceous schist; south of Fraser River includes greenschist-grade sandstone, pelite and broken formation; metamorphosed in Cretaceous
	CRETACEOUS		
	LATE EARLY, EARLY LATE CRETACEOUS		
	PASAYTEN GROUP	<b>KPw,v</b>	(a) undifferentiated sandstone, conglomerate, argillite; (b) "Windrop facies" (Pw) of PASAYTEN GROUP, arkose, conglomerate, argillite and minor red beds and tuff; (c) "Virginius Ridge facies" (Pv) of PASAYTEN GROUP, chert-grain sandstone, argillite; as mapped, Pasayten lies east of Chuwanten Fault, but is probably a non-marine facies equivalent of the upper part of the JACKASS MOUNTAIN GROUP
	EARLY AND MIDDLE CRETACEOUS		
JACKASS MOUNTAIN GROUP	<b>Kj</b>	Sandstone, argillite, conglomerate; lies west of Chuwanten Fault; marine and non-marine; upper part is probably a facies equivalent of PASAYTEN GROUP	
	<b>Kgd</b>	Quartz diorite (qgd), diorite (d), granodiorite (gd), minor ultramafic rock (SPUZZUM PLUTON); local gneissic phases	
MESOZOIC	JURASSIC(?) AND CRETACEOUS		
LATE JURASSIC AND EARLY CRETACEOUS			
	<b>JKgd</b>	Granodiorite and gneiss (EAGLE PLUTONIC COMPLEX)	
	<b>JKd</b>	Diorite and amphibolite (EAGLE PLUTONIC COMPLEX)	
	<b>JKg</b>	Muscovite-biotite granite and pegmatite (EAGLE PLUTONIC COMPLEX)	
EARLY AND MIDDLE JURASSIC			
	<b>JH</b>	HARRISON LAKE FORMATION: intermediate, locally felsic flows and pyroclastics; local argillite, conglomerate	
		LADNER GROUP	
	<b>JL</b>	Argillite, slate, siltstone, tuff; as mapped, includes minor amounts of Upper Jurassic sandstone and conglomerate, possibly correlative with "Thunder Lake sequence"	
	<b>JD</b>	DEWDNEY CREEK FORMATION of LADNER GROUP: sandstone, argillite; local mafic to intermediate volcanics	

MESOZOIC	TRIASSIC		
	<b>Tsp</b>	SPIDER PEAK FORMATION mafic volcanics	
	<b>PMu</b>	Ultramafic rock, local gabbro	
PALEOZOIC AND/OR MESOZOIC	PERMIAN TO JURASSIC		
		HOZAMEEN COMPLEX (PJH-PJHv)	
	<b>PJH</b>	Undifferentiated, chert, pelite, mafic volcanics, minor amphibolite, gabbro, and ultramafic rock	
	<b>PJHv</b>	Mafic volcanics	
		BRIDGE RIVER COMPLEX	
<b>PJBR</b>	Siliceous and chlorite schist, phyllite, correlative with HOZAMEEN COMPLEX but west of Fraser River		
<b>PJu</b>	Ultramafic rock and local gabbro, associated with HOZAMEEN and BRIDGE RIVER COMPLEXES		

Area of outcrop	
Geological boundary (defined, approximate, assumed)	
Bedding, tops known (inclined, vertical)	
Schistosity, gneissosity, cleavage (inclined, vertical)	
Lineation, axis of minor fold, mineralogical elongation (horizontal, inclined)	
Major fold axis (syncline, anticline, overturned fold, arrow indicates plunge)	
Lineament (from airphoto)	
Fault (defined and approximate; assumed and extension beneath drift)	
Normal fault (bar indicated downthrown side)	
Strike-slip fault (arrow indicates relative movement)	
Thrust fault and "layer parallel" fault; teeth on upper plate	

Geological mapping by J.W.H. Monger, Geological Survey of Canada (1984-86); in addition, this compilation includes material from numerous sources (published reports by G.S.C. and B.C. Geological Survey, theses mainly at the University of British Columbia, and recent mapping by G.E. Ray, B.C. Geological Survey, in the Coquihalla and Hedley areas)

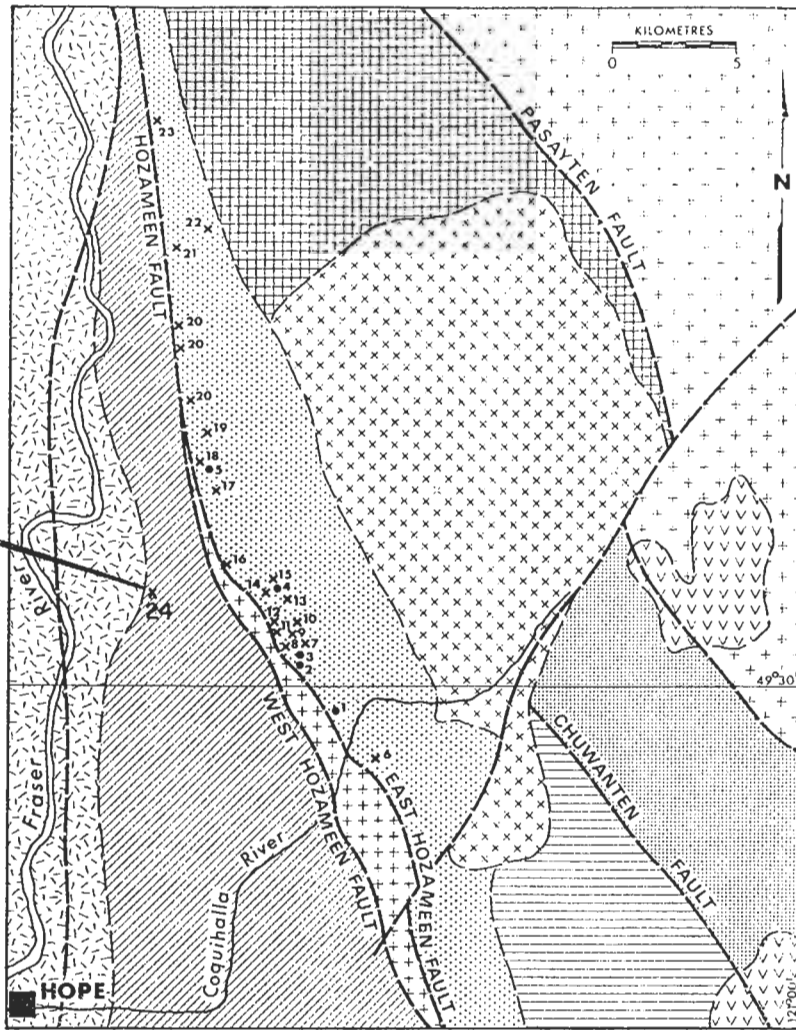
Geological cartography by the Geological Survey of Canada

MIKE BRADLEY & ASSOCIATES

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## LEGEND FOR REGIONAL GEOLOGY MAP

SCALE	N.T.S. 92M/11W	FIGURE No. 3b
DRAWN BY: B.L.	DATE: NOV. 1996	



**HILLSBAR PROPERTY**

**LEGEND**

- |  |                        |  |                            |
|--|------------------------|--|----------------------------|
|  | COQUIHALLA GROUP       |  | LADNER GROUP               |
|  | NEEDLE PEAK PLUTON     |  | COQUIHALLA SERPENTINE BELT |
|  | PASAYTEN GROUP         |  | FOLIATED GRANODIORITE      |
|  | JACKASS MOUNTAIN GROUP |  | HOZAMEEN GROUP             |
|  | DEWDNEY CREEK GROUP    |  | GNEISSES AND GRANITES      |

● PAST AND PRESENT GOLD PRODUCERS (SEE TABLE 2)

- |                  |           |                               |
|------------------|-----------|-------------------------------|
| 1 - EMANCIPATION | 2 - AURUM | 3 - IDAHO ZONE (CAROLIN MINE) |
| 4 - PIPESTEM     | 5 - WARD  |                               |

X REPORTED GOLD OCCURRENCES (SEE TABLE 3)

- |                      |                         |                                |
|----------------------|-------------------------|--------------------------------|
| 6 - BROKEN HILL      | 7 - SNOWSTORM           | 8 - MONTANA                    |
| 9 - RUSH OF THE BULL | 10 - GOLDEN CACHE       | 11 - McMASTER ZONE             |
| 12 - MURPHY          | 13 - GEM                | 14 - STAR                      |
| 15 - HOME X          | 16 - NORM AND GEORGIA 2 | 17 - EMIGRANT                  |
| 18 - RODDICK         | 19 - MARVEL             | 20 - SPUZ A, B, G AND MONUMENT |
| 21 - MAJESTIC        | 22 - GOLD COIN          |                                |
| 23 - GOLD CORD       | 24 - HILLSBAR           |                                |

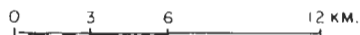
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**GOLD OCCURRENCES IN  
THE COQUIHALLA GOLD BELT**



AFTER MONGER, 1970



SCALE 1:300,000

N.T.S. 92H/11W

DRAWN BY: B.L.

DATE: NOV. 1996

FIGURE NO. 4

The geological features of the Hope map area are diverse and complicated by Mesozoic through Tertiary structures. The lithostructural interpretation of the Tertiary deformation is constrained by age dating of intrusions and fault relationships but remains controversial. The following is a brief review - the reader is referred to the above sources for a detailed explanation of the area's geology.

The Hope map area contains two contrasting geological and physiographic provinces: A. East of the Fraser-Pasayten Fault lies the Intermontane Belt; a region of lower topographic and structural relief within Quesnellia Terrane, comprised of predominantly subgreenschist metamorphic grade rocks. B. West of the Fraser-Pasayten Fault are two belts having high topographic and structural relief; the Cascade Belt (located east and south of the Fraser River) and Coast Belt (west and north of Fraser River). The north-northwest trending Cascade belt, in its southern part, comprises both a gneissic and granitic core flanked by belts of sedimentary and volcanic rocks. Further north, the core is juxtaposed across the Hope Fault with granitic and amphibolite grade metamorphic rocks of the Coast belt. The difference in metamorphic grade between the two belts suggests to Monger (1969) a greater degree of uplift and erosion for the Coast Mountains than for the Cascades. Monger (1989) separates the pre-late Mesozoic rocks of Hope map sheet into 5 lithotectonic terranes, listed below from east to west:

**A. Intermontane Belt- Quesnellia Terrane:** The belt comprises predominantly felsic to mafic volcanic and sedimentary facies rocks of the Upper Triassic Nicola Group, extensively cored by partly comagmatic Late Triassic-Early Jurassic intrusive rocks, including; granodiorite plutons, diorite of the Mount Lytton Complex and Hedley Intrusions, alkaline intrusions of the Copper Mountain Stock and Tulameen Complex and by Jurassic through Tertiary aged intrusive rocks. A northwest-trending basin, infilled by Cretaceous Spences Bridge Group intermediate to mafic volcanic and sedimentary rocks, is centered at Princeton, B.C.

**B. Coast-Cascade Belt - Methow-Tyughton Terrane:** The terrane comprises: a. basal ophiolite - the Spider Peak Formation (Tsp) and associated ultramafics (PMu) of Triassic (?) age, together referred to as the Coquihalla Serpentine Belt, is overlain by b. fine-grained clastic sediments of the Lower-Middle Jurassic Ladner Group (JL) containing a subordinate intermediate to basic volcanic facies - the

Dewdney Creek Formation (JD), overlain by c. a thin, Late Jurassic clastic succession - the Thunder Lake sequence (lJs), overlain by upper-most d. fine to coarse clastic sediments of the Lower Cretaceous to Upper Cretaceous Jackass Mountain (Kj) and Pasayten (KPw,v) Groups. The terrane is cored by the Eocene Needle Peak Pluton (Egd) and associated small granodiorite stocks and overlain, in the Podunk Creek area, by intermediate to felsic pyroclastics and flows of the Coquihalla Formation (OMcv).

**C. Coast-Cascade belts - Bridge River Terrane:** The terrane is located east of Fraser River and is comprised of the Permian to Jurassic Hozameen Complex; a strongly deformed oceanic supracrustal sequence, subjected to greenschist grade metamorphism. The Complex is dominantly a fine clastic sequence, including chert and pelite with small undifferentiated intercalations of mafic volcanics, limestone, gabbro and ultramafics (PJH). A mafic volcanic facies (spilitized basalt - PJHv) is recognized in the central and eastern areas of the Complex,

south of Squeah Mountain. The Hozameen Complex is correlative with the Bridge River Complex, located in the northwest of Hope map sheet and in the western areas of Ashcroft map sheet. Both complexes have associated small bodies of ultramafic rock and local gabbro (PJu) which assume mappable dimensions at intervals north of Suka Creek.

**D. Coast-Cascade belts - Chilliwack Terrane:** In the southwest corner of the Hope mapsheet and west of the metamorphic core of the Cascades lies a complexly folded and faulted, Devonian to Jurassic sequence. The oldest rocks are undifferentiated pelites, sandstone, minor conglomerate, mafic and felsic volcanics and carbonate of the Devonian to Permian Chilliwack Group (DPe). Stratigraphically above are pelites and sandstone of the Upper Triassic and Lower Jurassic Cultus Formation (TJc) and clastics of Upper Jurassic age (Jk).

**E. Coast-Cascade belts - Harrison Lake Terrane:** The terrane is located north of Fraser River and west of Harrison Lake. This middle Triassic to Lower Cretaceous succession comprises: a. a lower-most unit of siliceous argillites and mafic volcanics - the Camp Cove Formation (Tcc) is unconformably overlain by b. the Harrison Lake Formation (JH); a thick succession of mainly intermediate but locally felsic volcanics of Lower to middle Jurassic age, overlain by c. Mysterious Creek

Formation(Jm) shales of the Middle and Upper Jurassic, overlain by d. Billhook Creek Formation intermediate volcanoclastics of Late Jurassic age, overlain by upper-most e. Peninsula Formation (JKp) sandstone and conglomerate, grading upwards into intermediate pyroclastics and flows of the Brokenback Hill Formation of Upper Jurassic (?) and Lower Cretaceous age.

The Harrison Lake Terrane is intruded by granodiorite plutons and stocks of Lower Jurassic, Oligocene and Miocene ages.

**Coast-Cascade belts - Metamorphic Rocks:** A belt of lower greenschist to amphibolite metamorphic grade schists, is located east of Harrison Lake and west of the Fraser Fault System - Ross Fault lines. The metamorphic rocks have an uncertain protolith age but are believed to be in part correlative with dated, lower grade rocks to the east and west. The Cogburn Schist (PMc), of greenschist to amphibolite metamorphic grade,

is said to lithologically resemble the Hozameen/Bridge River Complexes. The structurally highest metamorphic rocks are amphibolite grade Settler Schists (Ms), which may derive from Jurassic and Triassic rocks of the Tyaughton-Methow Terrane. Associated gneissic rocks have been dated by U-Pb method and group into Late Triassic, mid Cretaceous and early Tertiary (Custer Gneiss) age.

The structural evolution of the Hope area is complex and subject to ongoing study. Each of the above Terranes represents volcanic arcs, oceanic crust and marine sediments, which are allochthonous to the North American craton and bounded by major faults. "Most uniquely Cordilleran crust was created in Jurassic to earliest Triassic time, probably by structural stacking of rock units on discrete thrust faults and by folding and flow in a generally contractional regime and by addition of mantle-derived magmatic rock to the crust" (Monger, 1989). All Terranes had docked by mid Cretaceous time and orogeny, related to compressional tectonics, dominated through Tertiary time with regional uplift, strong folding, thrust and reverse faulting and local metamorphosing, migmatizing and granitic intrusion of all pre-mid Cretaceous rocks. Following uplift, Tertiary extensional deformation, related to crustal thinning, dominated in the Cordillera. In Hope map sheet this period of extension is represented by transtension, probably related to wrench faulting, at approximately 50 Ma. The north to north-northwest trending

Fraser Fault System (locally the Hope, B.C. and Straight Creek, Wa. Faults) is the major Tertiary structure, dextrally offsetting older northwest-trending structures by 80-100 Km., between 35-47 Ma. Ross Lake Fault, located 5 Km. east of and in part subparallel to Hope Fault, is an Eocene normal and/or dextral strike-slip fault.

Northeast trending faults, notably Coquihalla Fault, are most prominent in Tyaughton-Methow Terrane and in meta-Nicola and Mount Lytton-Eagle Plutonic Complex. Movement was mainly dextral with a vertical component, occurring post-intrusion of the Needle Peak Pluton (48 Ma) and possibly post-extrusion of the Coquihalla volcanics (22 Ma.). Vedder Fault, south of Chilliwack and other small, northeast trending faults and linears in the Coast Range, may be associated with the Coquihalla Fault set.

**8. ECONOMIC GEOLOGY:** (Figure 4) The Hope map sheet was a hive of placer activity in the late 1850's through 1870's, with most of the productive workings on gravel bars along Fraser River. As the bars became mined out in the 1870's exploration shifted to lode deposits. The area was explored for lode silver (Treasure Mountain) and gold deposits (Coquihalla belt), in the period 1880-present; for copper-nickel (Giant Mascot), from 1920-1958; for porphyry copper-molybdenum (Axe) and copper-gold (Copper Mountain), from the 1950's to present; for gold skarns (Hedley), 1900 to present; for epithermal gold-silver and for platinum (Tulameen Complex), in the 1980's and for volcanogenic massive sulphides (Seneca), in the 1970's and 1980's. Two open pit mines are currently producing in the area: Similkameen Copper - an alkaline porphyry/skarn copper-gold deposit, located 12 Km. south of Princeton and Nickel Plate - an arsenical gold skarn, located at Hedley. The Coquihalla gold belt (see Figure 3B) is located 4 Km east of Hillsbar Adit on Hillsbar #1 claim. The Belt has been extensively explored for lode gold deposits from the 1880's through the mid 1980's, culminating in production from the Idaho Zone at the Carolin Mine (1981-1984. Recent exploration of the McMaster Zone at Carolin and further south at the Emancipation Mine, have attempted to indicate sufficient ore to justify delineation drilling and small mine gold production. The Coquihalla gold belt contains 5 former producers and 19 minor gold occurrences (Ray, 1983). The majority of the occurrences are gold - bearing quartz veins, hosted in quartz infilled tensional fractures. In



contrast, gold mineralization at the Carolin Mine is an epigenetic mesothermal replacement style, with associated and possibly zoned sulphides, albite, quartz and gold, hosted in deformed Ladner Group metasediments, of Jurassic age. Age of gold mineralization at Carolin Mine is not precisely known but postdated tectonic overturning of the Ladner Group and apparently was pre-contemporaneous with upright to asymmetric folding.

Gold occurrences of the Coquihalla gold belt cluster along the eastern edge of the Coquihalla serpentine belt; a north-northwest trending, steeply dipping sliver of highly sheared to massive serpentinite (after peridotite) and lesser amounts of highly altered gabbro-d diabase rocks. The serpentine belt is bounded by east and west splays of the Hozameen Fault and separates supracrustal rocks of the Ladner Group, to the east, from Hozameen Group rocks, to the west. The serpentine belt is 2 Km. wide in the vicinity of the Carolin Mine to Coquihalla River area, narrowing dramatically to the south (Mount Outran) and north (Siwash Creek), where Ladner and Hozameen Groups are in direct fault contact. Ray (1983) lists the following features of gold deposits and occurrences in the Coquihalla gold belt:

- a) Gold zones are proximal to greenstones, fault bounded serpentinites and small fuchsite-bearing quartz-carbonate zones similar to those in the Bralorne Mine, Cassiar Gold Camp and Mother Lode Belt, California.
- b) Located predominantly east of the East Hozameen Fault.
- c) Gold is fine-grained and coarse visible gold is rare, except at the Aurum Mine.
- d) Gold zones occur in highly fractured, therefore more competent host rocks, such as; greenstone (Emancipation, Murphy), felsite porphyry sills (Ward, Emigrant), metasedimentary rocks of the Ladner Group (Idaho and McMaster Zones, Pipestem, Rush of the Bull, Gem, Golden Cache, Homex, Spuz), or in fault zones between competent and incompetent rocks, e.g. greenstones against metasedimentary rocks.
- e) Gold mineralization is accompanied by introduction of silica, commonly in discreet, generally narrow quartz veins or in wider zones of intense network veining and diffuse silicification, eg.; saddle reefs as at the Carolin Mine.
- f) Gold is associated with varying amounts of sulphides, including; pyrite, arsenopyrite, pyrrhotite and chalcopyrite.

g) Geochemical Associations: Incomplete work suggests no, or rare gold-mercury association. A weak gold-tungsten association is reported in the Spuz occurrence and Idaho Zone. Widespread albitization at the Carolin Mine suggests sodium enrichment within gold zones - probably from subjacent spilitized volcanics, therefore suggesting a possible greenstone source for the gold.

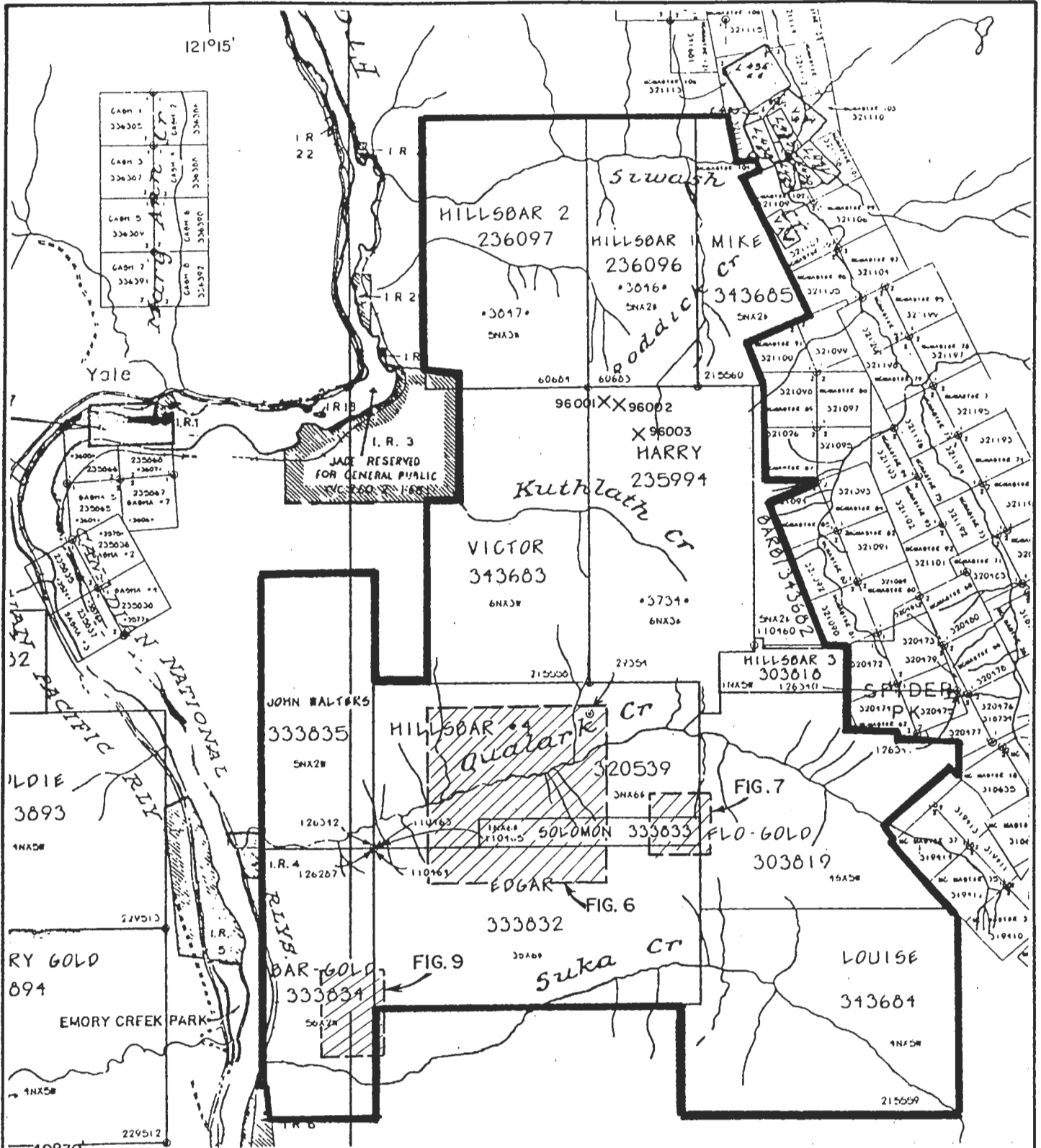
## 9. PROPERTY GEOLOGY:

**a. Field Procedures:** Survey control was by metric topofil chainage along logging roads and compass-topofil traverse lines run from accurately positioned points on the roads. Topographic control was established from B.C. airphoto series BC83007 Nos. 258-260 and from Ministry of Forests Inventory Map 92H054 at a scale of 1:20000. A portion of the Forest Service map was enlarged to scales of 1:5000, 1:2000 and 1:1000. Topographic contour lines were transferred from similarly enlarged government 1:50,000 scale topographic maps to the enlarged Forest Service map noted above. This composite map was then redrafted to provide a base for plotting sample locations and geological information, presented in Figures 6 and 7. The maps for the Bar-Gold claim work were produce from enlargements of a government 1:50,000 scale topographic map (NTS 92H/11W). Geologic and sample information was then plotted on the new map presented in Figures 8 and 9.

During the first program, work was concentrated along the lower western portion of Qualark Creek. A field crew of two people consisting of a geologist and a field assistant started work upstream from the old Mainline logging road bridge. It is believed that the old historical Hillsbar Mine Adit (#3 vein) which achieved limited production in the late 1920's is located between the bridge and 150 meters above the bridge. Numerous landslides have come down from the old mainline running on the north side of Qualark Creek. No evidence of the old mining camp nor of the portal area were found. The creek bed and banks were geologically mapped and rock chip and silt samples were taken for a distance of 1200 meters upstream from the bridge (Figure 6). A total of 4 silt samples were taken from the active part of the stream channel and stored in waterproof kraft bags. One rock chip grab sample was taken. Samples from this program are numbered 96004 to 96008. The traversé was

121°15'

CASH 1	336305	CASH 7	336309
CASH 2	336306	CASH 8	336310
CASH 3	336307	CASH 9	336311
CASH 4	336308	CASH 10	336312
CASH 5	336309	CASH 11	336313
CASH 6	336310	CASH 12	336314



LEGEND

96001 X Rock sample location & No.



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<b>INDEX MAP</b>		
SHOWING LOCATION OF DETAILED GEOLOGY AND GEOCHEMISTRY MAPS		
SCALE 1:50,000	R.T.S. 92H/11W	FIGURE No. 5
DRAWN BY: B.L.	DATE: NOV 1996	

tied into the bridge over Qualark Creek and points along the logging road. The traverse position along the creek was established by compass and topofil chaining machine survey. Three rock chip channel type samples were taken from dyke outcrops in the northwestern section of the Harry claim. Samples from this area are numbered 96001 to 96003 on Fig.5.

The second and third programs were conducted on the southeastern portion of the Hillsbar#4 & Solomon claims and the western boundary area of the Flo-Gold claim. A crew of 2 people consisting of a geologist and field assistant mapped and sampled the area along a grid that was established using a compass and hip distance chaining machine. A tieline (TL100N) set up east-west control for the 5 north-south running lines. Sampling and mapping was also conducted along old grown in logging roads. The roads were tied into the grid lines. The results are plotted on a 1:1000 scale map produced by procedures noted above (Figure 7). Soil samples were collected primarily from the "B" horizon and stored in kraft paper double gusset sample bags. Soil samples were collected at 25 meter intervals along the grid lines where possible. Steep bluffs and cliffs in this area made navigation very difficult along with thick second growth brush. Rock samples were collected in plastic sample bags at random intervals and sample sites were selected specifically to test certain geologic features. Most of the rock samples were of a channel sample type generally 4 cm wide by various lengths ranging from 40 cm to 200 cm long. Samples from this program numbered From MB-12 to MB-84, a total of 73 samples. Results are located in Appendix 2 and 3.

The fourth program was conducted on the Bar-Gold claim. A geochemical survey map with a scale of 1:10000 and dated Nov. 1990 was initially used to locate the geochemically anomalous sites on the ground and to locate rock outcrops. The old mainline logging road, although densely grown in, was used for survey control. The 1:10000 map was enlarged to 1:2000 to provide more detail for mapping and sampling.

Two sections of the road were sampled and mapped at a scale of 1:2000. The sections are referred to as the QC (Qualark Creek) Zone and the SC (Suka Creek) Zone (Figures 8 & 9). At each zone a sample grid was layed

out for control purposes using compass and hip distance chaining machine to lay out the grid stations. A field crew of 2 people consisting of a geologist and a field assistant conducted the surveys. The field surveys were conducted between Oct. 29 to November 16, 1996 for a total of 6 days.

The majority of the soil and rock samples were collected at 10 meter intervals. Soils were collected from the "B" soil horizon where possible and stored in durable gusset kraft sample bags. Rock chip grab samples were collected from the QC and SC Zones, particularly from sections which displayed strong iron staining and gossan mineralization. A total of 16 soil samples were collected from the QC Zone, numbered QC/S1 to QC/S16 and 8 rock chip samples were also collected numbered QC/R1 to QC/R8. A total of 49 soil samples were collected from the SC Zone, numbered SC/S1 to SC/S49 and 23 rock chip grab samples were also taken, numbered SC/R1 to SC/R23. The samples were analyzed for gold at Acme Analytical Laboratories Ltd. in Vancouver. Results are located in Appendix 3.

**b. General Geology:** (Figures 3a, 4)

(Modified from Bradley, 1993)

The G.S.C. regional geological map 41-1989 at a scale of 1:250000, compiled by Monger (1989), provides a geological framework for the study area. The G.S.C. work appears to be based on ridgeline traverses to the north and south of Qualark Creek. The eastern portion of the Flo-Gold claim was partially mapped by the B.C. Department of Mines and this work is available in B.C.D.M. Open File 1986-1C at a scale 1:20,000.

The Hillsbar #4 claim straddles a regional fault contact between Custer Gneiss of Tertiary age, in the west and deformed sediments of the Permian to Jurassic Hozameen Group, in the east. The fault is shown in Figure 3a to be north trending and appears to be a splay of the Fraser Fault System. In Monger's (1969) description of Custer Gneiss, he mentions that gneiss in Fraser Canyon "grades through a complex of numerous small granitic intrusions [sills and small composite bodies; Kgd, eTgd - formerly Yale intrusions] into the Hozameen Group. Along Silverhope Creek (south of Hope), gneissic rocks are separated by a zone of highly deformed and sheared schistose rocks a few hundred feet wide from rocks of the uppermost Hozameen Group." The implication of the

above is that the Custer - Hozameen contact is not a discrete structure, rather a complex zone of shearing and intrusion.

The granodiorite intrusion (Egd) north of Qualark Creek (Figure 3a) has not been isotope dated by the G.S.C.; it was previously grouped with the Yale intrusions but in Monger's recent compilation (Map 41-1989), the intrusion is assigned an Eocene age, contemporaneous with the Mount Outran and Needle Peak Plutons. In the absence of an age date or other definitive criteria, this irregularly shaped intrusion may range in age from Late Cretaceous to Miocene (lKgd, Mgd).

The eastern portion of the Flo-Gold claim straddles the Coquihalla Serpentine Belt - a deep-seated fault separating the Hozameen Group (Permo-Jurassic) sediments in the west, from Ladner Group (Jurassic) sediments to the east.

**c. Description of Lithologies: (Figures 3a & 3b, 4)**

**Unit A (Permian to Jurassic Hozameen Group):**

The Hozameen Group contains the oldest lithologies represented on the Hillsbar property. Regionally, the Hozameen Group achieves an apparent thickness of ~7.8 Km. in four stratigraphic divisions (Monger, 1969):

- |  |             |     |
|--|-------------|-----|
| iv. Greenstone, chert, pelite, limestone pods  | >2.1        | Km. |
| iii. Ribbon chert and pelite                   | >1.8 - 3.0  | Km. |
| ii. Greenstone, minor chert and limestone pods | >0.76 - 1.2 | Km. |
| i. Ribbon chert, local bodies to 0.37 Km.      | >1.5        | Km. |

Rocks ascribed to the Hozameen Group on the Hillsbar #4 claim are located in a narrow, northwest trending band, between sample 96004 and eastward up Qualark Creek valley to the Coquihalla Serpentine Belt, in the eastern portion of the Flo-Gold claim. It is interrupted by dykes and related aplitic sills belonging to the Mount Outran Tertiary to Eocene dioritic to granodioritic plutons. The Hozameen rocks include Unit A1 - a predominantly argillaceous division with narrow chert bands and Unit A2 - comprised of ribbon chert and silicified argillite with subordinate narrow bands of pelite. Since greenstone and limestone facies have not been observed on the Hillsbar #4 claim, the author assumes local Unit A rocks belong to an upper division of the Hozameen Group, probably division iii. (above). Greenstone bands occur on the Flo-Gold claim and these may belong to the uppermost division iv. (above) of the Hozameen.

**Unit A1:** Thinly banded argillaceous rocks, including medium grey to black coloured argillite, slaty argillite, slate and shale, predominate south of Qualark Creek and west of Hillsbar Adit that was mapped in 1993. East of the adit, Unit A1 lithologies are dominantly phyllites and talc/chlorite schists with intercalated bands of slate, argillite and chert. Chert and siliceous argillite/slate bands 1 - 60 cm wide are not uncommon and are recognized by their resistive, bold and blocky weathering character. Colour variations and related grain size variation from fine to very fine-grained, suggest the unit is bedded and upright, striking northwest and dipping moderately to the northeast. In the vicinity of the southeast portion of the Hillbar #4 claim and the Solomon and Flo-Gold claims junction area, The dips steepen to -65 to -85° towards the northeast. The friable nature of the lithology and presence of slaty cleavage commonly obscure bedding attitudes. The unit contains wide spaced, discontinuous, folia-form, centimeter scale, milky-white, bull-quartz veinlets and lenses. The veins are commonly barren of sulphides but a few contain sparse, fine-grained, crystalline pyrite. The quartz appears to represent silica mobilized during regional metamorphism from chert and siliceous argillite lithologies and redeposited in dilatant zones within shears, fractures and fold hinges.

**Unit A2:** Medium to dark grey-black ribbon chert, defined by dark grey chert bands interbedded, intercalated and interbanded with 0.1-1.0 m wide pelitic layers, occurs in the central area of Hillsbar #4 claim near upper Hillsbar Adit mapped in 1993 and in scattered outcrop to the east on the Hillsbar #4 and Flo-Gold claims. The cherts are moderately hard and moderately fractured, with a prominent slaty cleavage trending 115°-130°/65°N developed in argillite/slate interbands. Unit A2 weathers light brown to dark grey in colour, forming steep subparallel bluffs and bold, flaggy, cleavage controlled cliffs and benches, adjacent to upper Hillsbar Adit mapped in 1993. In the adit area, ribbon cherts appear to have been partially recrystallized and silicified, based on lighter grey colouration in some parts and 0.5 mm drusy vugs, fine quartzitic textures and presence of light grey, conformable quartz veins. The slaty cherts are sheared and gouged at wide spaced intervals over widths of 0.20 - 1.3 m, subparallel to

cleavage trending 128°/60°NE and are healed in part by sinuous, pinch and swell, white, bull-quartz veins. Ribbon structured quartz veins in Hillsbar Adit and adjacent along Qualark Creek, carry minor amounts of arsenopyrite, pyrite, chalcopyrite and free gold.

**UNIT A3:** Outcrops of greenstone are found in the eastern portion of the Flo-Gold claim, north of Qualark Creek. The greenstone is typically dark green in colour, moderately sheared and altered to chlorite, talc and epidote. Tuffaceous, or tuffaceous pelitic bands are common in the greenstone, as are dykes of hornblende-rich basalt dykes, up to 1m wide. Chert bands are located in close proximity to greenstone outcrops but contacts are obscured by faulting and or by quartz porphyry dykes.

**UNIT D:** Dykes of quartz porphyry are found within scattered outcrops of chert and greenstone in the eastern portion of Flo-Gold claim, north of Qualark Creek. The dykes are 1.5 - 9m wide, light grey - green in colour and rusty weathering. Quartz eyes and rare ghosts of feldspar phenocrysts are common in the size range of 1-2 mm. The dykes are related to north and northwest trending faults within and between the chert and greenstone units. The dykes also seem to have a spatial association with the Coquihalla Serpentine Belt. Contacts of the dykes with enclosing lithologies are silicified and rich in iron and manganese oxides. Pyrite and pyrrhotite are found as disseminations and as fracture fill in the contact selvages of the dykes. The author assumes these quartz-rich dykes are related to a volatile-rich phase of the Eocene aged Mount Outran granodiorite plutons, located elsewhere in the region.

**Unit D - Aplite:**

The youngest rocks encountered on the Hillsbar #4 claim are scattered aplite dykes and sills, varying 0.02-2.0 m in width. Aplite intrudes weakly sheared, sericitic, feldspar diorite porphyry of Unit C1 and meta-cherts of Unit A, located along Qualark Creek to a point 80 meters west of station 2 + 55E and continuing upstream to the 1996 camp site (Figure 6). Aplite is commonly light grey to white in colour, weathering light orange-brown where the unit contains 1/2-1% fine to medium-grained crystalline pyrite. The unit is fine-grained sucrosic to cryptocrystalline in texture and is very siliceous - superficially



resembling quartz veinlets, which are found associated with the dykes. Contacts with the host diorite porphyry are sharp and marked by a weak, narrow (<1 cm wide) silica selvage and a 0.1 - 1.0 m wide diffuse and erratic sericite alteration. Aplite dykes/sills are common on subhorizontal attitudes, also trending  $130^{\circ}/40^{\circ}\text{SW}$  and  $045^{\circ}-055^{\circ}/80^{\circ}\text{NW}-90^{\circ}$ .

**Quartz Veins:** Light grey to milky-white bull-quartz veins are relatively common in the study area particularly within the dioritic to granodioritic and feldspar porphyry diorite dyke zone located on the southeast Hillsbar #4 claims and Solomon Claims (old Holly Showing) (Figure 7). They are also common as sulphide-barren discontinuous metamorphic veins in the phyllites, argillites and slates. Tension fractures and shears in all units contain widely spaced, pinch and swell, bull-quartz veins. These veins contain trace amounts but locally 1-2%, fine-grained crystalline and blebby pyrite. Quartz veins in the study area commonly occupy structures trending north ( $170^{\circ}-180^{\circ}/60^{\circ}\text{E}-90^{\circ}$ ) and northwest ( $125^{\circ}-152^{\circ}/40^{\circ}-80^{\circ}\text{NE}$ ), dipping moderately to the east. In both the Qualark Creek and the southeast Hillsbar claim area, mapping in this program also found that many of the veins exhibited strikes of  $075^{\circ}$  to  $085^{\circ}$  with dips of 35 to  $85^{\circ}$  to the south and many of the northwesterly trending veins have southwesterly dips rather than the common 40 to  $80^{\circ}$  northeasterly dips (Figure 6 & 7).

**d. Qualark Creek - Detailed Geology and Sampling:** (see Figures 6)

During late July 1996 a 1200 m section of Qualark Creek, starting at a point (Station 0+00E) 175 meters upstream from the mainline logging road bridge was mapped and sampled at a scale of 1:2000 using compass-topofil control tied into the bridge and points along the mainline logging road located north of the creek. This work was designed to 1) locate the portal entrance area of the Hillsbar Mine adit from which a small amount of recorded historical production came from the Hillsbar #3 vein and 2) to map and sample the area of Qualark creek from the suspected portal location upstream to where mapping and sampling ended in the last exploration program conducted in 1993. The objective was to locate further gold bearing vein systems related to the known veins explored in

various old adits one of which was found and sampled in 1993.

At station 0+00 meta-pelites of Unit A have a foliation attitude of  $145^{\circ}/75^{\circ}\text{SW}$ . The pelites contact a quartz rich foliated hornblende gneiss (Unit B) in the area station 0+20 to 0+26E (proceeding upstream). The hornblende gneiss extends from 0+26 to 0+46E but is cut by a 30cm wide diorite dyke trending  $125^{\circ}/80^{\circ}\text{NE}$  at 0+40E. The dyke is truncated by a shear zone trending  $048^{\circ}/80^{\circ}\text{NW}$ . The shear zone is rusted and shows evidence of sulphide mineralization. Silt sample 96004 located at station 0+00E carries 21 ppb gold. Although this is a very weak anomalous value, it may be reflecting the accumulation of gold emanating from the contact and/or shear zone. Between stations 0+46E and 0+74E the hornblende gneiss contacts a sliver of Unit A meta-pelite which continues to 0+79E where it again is in contact with a quartz foliated biotite +/- hornblende gneiss ( $130^{\circ}/90^{\circ}$ ) of Unit B. The gneiss continues to 1+07E but is in turn cut by numerous late stage 30 to 50 cm thick flat lying aplitic dykes or sills? of Unit D. Quartz and feldspar are ubiquitous throughout the gneiss however quartz veining is weak. The absence of outcrop between 1+07E and 1+41E hides a further contact between the quartz - biotite +/- hornblende gneiss with meta-cherts and grey banded pelites of Unit A that extends from 1+41E to 1+57E. The meta-cherts and pelites continue to maintain a NW trend with foliation attitude at  $133^{\circ}/90^{\circ}$ . Warping caused by the intrusion of numerous dykes appears to have steepened the dip. The meta-cherts and pelites of Unit A are cut by 5m thick aplite dyke (Unit D) from 1+57E to 1+62E at  $088^{\circ}/90^{\circ}$ . Sulphide mineralization is absent. Contacts are sharp. At 1+62E the aplite dyke is in contact with a convoluted mix of diorite dyke and aplite dyke material of Units C1 and D. The relationship between the two rock types is not clear although it appears that the aplite dyke intruded at a later date than the diorite dyke as it came up along a previous contact zone (zone of weakness) and stopped into the margins of the diorite dyke. Moderate intensity quartz veining cuts both rock types. This mixed dyke zone continues upstream for 7 meters to 1+69E where a sharp contact with the host grey Unit A meta-cherts and pelites occurs. This unit continues to 1+81E and then contacts a medium grained hornblende diorite with feldspar (C1) dyke which continues to 1+97E. At 1+97E the dyke contacts meta-cherts and pelites (A) along a

sharp brecciated (fault?) contact trending 110°/80°NE. The pelitic and hornfels fragments show rotational textures. Unit A meta-cherts and pelites continue upstream to 2+05E where it contacts another Unit C1 6 meter thick dioritic dyke of indistinct attitude. This dyke contacts Unit A meta-cherts and pelites again at 2+11E. Minor quartz veining is evident in this area. The meta-cherts continue to 2+16E where it comes into contact with a large 39m wide aplite dyke of Unit D. The contact attitude is 075°/75°SE. Rock chip grab sample 96005 was taken from a rusty weathering section of the dyke at 2+55E where it again contacts meta-pelites and cherts of Unit A. The gold value in the sample yielded a below detectable limit result. The meta-cherts and pelites continue eastward to 2+75E where they contact a hornblende diorite dyke which in turn is cut by a small aplite dyke. The dioritic dyke continues to 2+85E where outcrop stops. Between 2+85E and 3+05E the dyke contacts Unit A meta-cherts and pelites and minor meta-volcanics? at 3+05E silt sample 96006 was taken in the active part of Qualark Creek. This sample yielded a moderately strong gold anomaly of 110 ppb gold. Gold may be emanating from the dyke/meta-chert contact zone and accumulating in the sediments. From this station eastward upstream to the 1996 campsite only 5 widely spaced outcrops occur. They are all of Unit A meta-cherts and meta-pelites. Very little in the way of mineralization, dyking and veining were observed. Silt sample 96007 and 96008 located at stations 5+97E and 8+22E respectively reflect the lack of visible mineralization with assay values of 8 ppb gold and 7 ppb gold.

It is apparent that gold mineralization is strongly associated with intrusive events related to the emplacement of the dioritic dykes and associated veins along a NW trending structural zone of weakness (Hillsbar Shear Zone) that runs parallel and/or subparallel to the contact between the Custer Gneiss (Unit B) to the west and the Hozameen metasediments to the east. This zone of weakness has allowed later stage Mount Outran derived dykes to invade the area. The aplite dykes may be the youngest intrusive event related to Mount Outran plutonism. It is uncertain if gold mineralization is associated with the intrusion of the aplite dykes.

**e. Hillsbar #4, Solomon & Flo-Gold Claims - Detailed Geology and'**

### Sampling (Figures 5 & 7)

During the month of Sept. 1996 two periods of geological mapping and geochemical rock chip and soil sampling was carried out on an area of the old Holly showing explored by others in the mid 1980's. A geologist and a field assistant conducted these surveys. This area is located on the southeast corner of the Hillsbar #4 claim and extends southward and eastward onto the Solomon and Flo-Gold Claim. The purpose of this program was to discover and understand the source of anomalous gold soil anomalies found by other operators with the objective of locating a potentially economically viable gold deposit. Previous operators discovered anomalous gold values in soil samples but did not carry out any follow up investigations.

A north - south trending grid was established from well defined points along old grown in logging roads. The terrain hampered progress due to steepness and thick underbrush. The grid was put in using a compass and hip distance chaining machine. Soil samples were taken at 25 meter intervals where possible and rock channel and grab samples were taken where outcrop was accessible.

The survey area is underlain by beds of meta-cherts, phyllites and meta-pelites belonging to Unit A (A1 & A2) of the Hozameen Complex. These rocks are foliated and trend  $115^{\circ}$  to  $145^{\circ}$  and dip  $65$  to  $85^{\circ}$  NE with local variations. The Hozameen units have been intruded by several phases of dyking probably related to Mount Outran plutonism. The different dyke compositions may reflect different phases of single intrusive event rather than separate events over a long period of time. The dykes range in composition from feldspar +/- quartz diorite porphyry, to feldspar +/- quartz granodiorite porphyry to a fine grained diorite. Pervasive silicification, clay alteration (argillic), ankerite/siderite alteration and pyritization mask the relationship between the different types of dykes. The dykes trend in the same northwesterly direction that the host Hozameen meta-cherts, phyllites and meta-pelites trend. The mapping shows that the dyke system is approximately 40 meters wide to the northwest in the vicinity of Line 99+50E near its intersection with tie line 100N and widens substantially to the southeast to approximately 110 meter wide between lines 101+00E and 102+00E south of the logging road. This feature suggests the dykes

intruded along a dilatant zone created by shearing and/or faulting (part of Hillsbar Shear Zone) in the Hozameen rocks and trends towards the dioritic to granodioritic and aplitic dyke system found in Qualark Creek described previously. Quartz veining with accompanying pervasive silicification occurs within the porphyritic granodiorite and feldspar porphyry diorite dykes as well as in the meta-chert, phyllite, pelite and siltstone and shales. Pyrite mineralization although generally less than 3%, is also pervasive in both the intrusive rocks and the metasediments. Clay alteration of feldspars particularly in the feldspar porphyry phases of the granodiorite and diorite dykes appears to be slightly less pervasive and may be a later stage event. The veining and silicification may have occurred during the latter stages of the dyke intrusion events as the veins cut the dykes in a wide variety of directions and attitudes and cross the contact margins into the Hozameen metasediments. Two dominant vein trends were mapped and they are  $120^{\circ}$  to  $155^{\circ}$  with dips  $40$  to  $75^{\circ}$ NE and  $070^{\circ}$  to  $095^{\circ}$  with dips  $20$  to  $40^{\circ}$  SW or SE. The mapping also indicates a change in the host Hozameen metasediments of Unit A from the east side of the dyke system to the west side of the dyke system. On the east side of the dyke system along the road, the Unit A rocks consist primarily of meta-chert to meta-pelites and phyllites of A1-A2 while on the west side of the dyke system siltstones and shales of A1 are present in the vicinity of samples MB-83 and MB-84. This may be more perceived than the case may actually be in that the metasediments on the east side of the dyke system are more intensely altered thus masking the true composition of the host units. Most of the rock chips samples that were collected were taken across single quartz veins or multiple quartz veinlets cutting both dyke rocks and metasediments. None of these samples yielded anomalous gold values. Both -100 mesh material and metallics in the +100 mesh sample reject were assayed and the results combined. This comparison of samples across the silicified and quartz vein metasediment and dyke rocks is clearly demonstrated in the blow-up insert on Figure 7 where samples MB-19 to MB-24 tested 14.7 meters of continuous Unit A outcrop and where samples MB-50 to MB-55 and MB-57, MB-58, MB-60 and MB-62 tested smaller continuous segments of veined and silicified feldspar porphyritic diorite to granodiorite dykes. These trace gold values in the rock chip samples is in sharp contrast to the soil sample results. Soil samples

taken north of the Solomon and Hillsbar #4 claim line are generally weakly anomalous showing less than 50 ppb gold while those taken south of the claim line, other than 5 isolated samples, are moderately to very strongly anomalous with gold values ranging from 69 pb to 1664 ppb gold from sample MB-32. The core of these strongly anomalous soil samples lies along and between Lines 100+00E and 102+00E. The anomalous area trends southeasterly toward Line 103+00E along the logging road onto the Flo-Gold claim. The low soil values north of the claim line may reflect the narrowing of the dyke system to the northwest resulting in a diminishing hydrothermal alteration and mineralizing influence of the dyke system. The much higher gold values in the soil samples in the wider and intensely altered intrusive dyke units and adjacent altered Unit A Hozameen metasediments may reflect the greater heat source generated by a much wider section of the dyke system thus yielding stronger hydrothermal alteration and mineralization. Although the rock samples showed only trace amounts of gold compared to strongly anomalous adjacent soil samples this does not diminish the importance of the soil anomaly. Many of the soil samples were taken at the base of bluffs comprised of the altered dykes and metasediments. This would allow the accumulation of gold over time in the soils as erosion broke down the silicified and pyritized and veined host rocks. This lack of correlation between the rock geochemical results and soil geochemical results indicate at this time, two possible sources of gold. The first is that the gold is carried pervasively at very low levels in the quartz veins and silica alteration that floods the host Outran dykes and Hozameen metasediments and accumulates over time in the soils or, secondly, that the gold mineralization has been introduced later along fault systems both adjacent to the contact zone between the Mount Outran Dykes and the Hozameen metasediments running northwesterly and cross faults systems running northeasterly. Sample MB-48 located along the logging road southeast of sample MB-36 and MB-37 on line 101+00E was the only channel sample taken across a fault zone. This sample yielded an assay of 0.004 ounces per tonne gold. Although this is a very low value it significant in that the value is 4 times higher than the majority of values found in the remaining rock samples. This core area of anomalous soil samples should be further assessed by adding grid lines between the present lines and adding more lines to the east - southeast further

across the Flo-Gold and Edgar claim. Channel sampling should be carried out using a gas powered plugger to obtain fresh material and special attention should be given to mapping and sampling shear and fault zones. The results of this proposed program should determine whether a drill program is warranted.

**f. Bar-Gold Claim - Detail of Geologic Mapping and Geochemical Sampling**

(Figures 8 & 9)

The fourth program on the Hillsbar property was conducted on the Bar-Gold claim from October 29 to November 15, 1996. This work was done to examine a weak soil geochemical anomaly that was located during a 1990 exploration program but never followed up. A 21 ppb soil anomaly was located in a rusty gossanous zone in sheared section of Custer Gneiss in the central part of the Bar-Gold claim adjacent to the old grown in mainline logging road. Several adjacent samples yielded values in the 6 to 9 ppb gold range before trailing off to background levels of 1 to 3 ppb gold. This zone was named the QC Zone in 1996. During the course of examining this anomaly, a second rusty gossanous linear zone was discovered near the southern part of the Bar-Gold claim just north of Suka Creek. This zone was called the SC Zone. The QC and SC Zones were geologically mapped and sampled. A total of 95 samples were taken along grid lines established over both zones. Of these 95 samples 16 were soils and 8 rock chips collected from the QC Zone and 48 soils and 23 rock chips from the SC Zone. The two grids were established using compass and a hip distance chaining machine. A geologist and field assistant carried out the surveys.

The bedrock geology mapped on both the QC and SC Zones consists predominantly of altered biotite granite gneiss of the Custer Gneiss series. Additional reconnaissance surveys conducted along the northeasterly portion of the Bar-Gold claim is also underlain by a ubiquitous granitic gneiss. The gneiss tends to vary locally from banded biotite-feldspar gneiss to a more sheared, mylonitic feldspathic gneiss. In part, the feldspathic gneiss resembles a late stage intrusive which was subsequently sheared and faulted.

A significant fault feature trending north-northeasterly can be traced paralleling the central portion of the claim. The Geological Survey of

Canada, on a regional scale, has mapped the granite gneiss as part of the Custer Series and the fault as part of the Hope-Fraser Fault system (J.W.H.Monger, GSC - Paper 69-47, Hope Map Area 92 H W 1/2).

The QC Zone outcrops along the old mainline logging road that goes from Suka Creek to Qualark Creek and occurs just south of a small swamp. The zone which is hosted in a biotite granite gneiss, has a typical iron oxidized - gossan appearance, and is traceable for at least 80 meters south of the swamp before it is covered by a talus slide. It is about 40m to 50 m wide. Any mineralization observed appears to occur as narrow (1cm - 2cm wide) seams along healed fractures. The walls of the mineralized seams are generally bleached and partly silicified granitic gneiss. The noted sulphide assemblage consists mainly of fine grained pyrite, pyrrhotite and minor chalcopyrite. Occasional disseminated pyrite was also observed with the granite gneiss outside the mineralized seams.

The soils overlying the zone appear to be of residual nature and are characteristically iron oxidized and ochre in colour. Sixteen (16) soils and 8 rock chip samples were obtained from the zone with the majority of the rock samples collected from the mineralized seams or adjacent to the seams. Immediately northwest of the swamp and paralleling the old logging road, a soil and rock chip sample (QC/R8 & QC/S8) were also collected, from and iron oxidized - granitic gneiss. This outcrop is probably the northwestern extension of the QC Zone.

The SC Zone is well exposed along the mainline logging road approximately 700m south of the QC Zone. This zone is traceable for at least 300 meters trending northerly. A grid was established for mapping and sampling control with the baseline having an azimuth of 350°. The zone exposed on the road is heavily oxidized. The mineralization also occurs in seams or lenses and the zone tends to be more extensively mineralized than the QC Zone. It is hosted in a sheared pegmatitic granite gneiss. The mineralized seams and lenses are up to 0.5m wide and are well silicified. The sulphide assemblage is the same as the QC Zone, consisting of finely disseminated pyrite, pyrrhotite and lesser chalcopyrite.

The extent of the oxidized zone ranges from 40m to 50m wide at the road section, gradually narrowing to about 10m to 20m wide at its northerly



extension. It has a strike length of at least 300m. Rock samples SC/R1 to SC/R15 were collected along the road section, across the exposed zone and sample SC/R16 to SC/R23 were collected at various points along the strike length of the zone. The majority of the soil samples were collected from red ochre "B" horizon residual soils immediately overlying the oxidized bedrock.

The gossans observed on the QC and SC Zones are believed to be the result of surface weathering and oxidation of the mineralized seams and lenses. Additionally, iron oxides leaching into the surrounding host rocks gives the zones the appearance extensive mineralization.

### **Discussion of Results**

The gossan nature of the QC Zone was initially identified by claim owner, Mr. Walters, during the 1990 reconnaissance road sampling program. This season, rock and soil surveys were conducted over the gossan zone and analyzed for gold. Eight (8) rock samples were fire assayed (also screened for metallics and assayed) for gold. All returned 0.001 or <0.001 oz/tonne gold. The 16 soil samples were geochemically analyzed for gold. The highest value was from QC/S14 which returned 6 ppb gold. The remaining samples ran between 1 and 3 ppb gold.

The results from the SC Zone were also very similar. All rock and soil samples were geochemically analyzed for gold. One rock sample SC/R9 yielded 6 ppb gold, the remaining 22 rock samples yielded 1 to <1 ppb gold. The highest value from soil samples ran 5 ppb gold (SC/S20). The remaining 47 soils ranged between <1 to 3 ppb gold. No significant anomalies were found.

10. **GEOCHEMICAL SAMPLING PROGRAM:** A total of 97 soil samples, 75 rock chip samples and 4 stream sediment samples were collected in the 4 survey programs carried out in 1996. The soils in the survey area are dominantly podzols, having a variably developed B horizon. A typical soil profile has 2-5 cm of leafy humus (LH), overlying 5-10 cm of dark grey-black organic-rich material (AH), overlying 5-20+ cm of medium to dark brown, red-brown or orange-brown soil - (B horizon). BF soils are common on the southeast Hillsbar #4 - Solomon - Flo-Gold grid area near the ridge between Qualark Creek and Suka Creek. They are commonly moist

and mottled red-orange-brown soils. Often the soil has a silty textured component where talus fines in small fans below rock bluffs have accumulated. This is a very common occurrence in the bluff rich area near the ridge between Suka and Qualark Creek on the southeast Hillsbar #4 - Solomon - Flo-Gold claims grid (Figure 7) and in the QC and SC Zones on the Bar-Gold claim (Figure 9). The effects of steep slopes, mass wasting and slide erosion, related to logging activities have probably disturbed soils and generated colluvial soils in the main sample areas described above.

In 1996, soil samples were collected from the B horizon at stations spaced at 25 m intervals in the southeast Hillsbar #4 - Solomon - Flo-Gold grid area and at 10 m intervals along the grid lines crossing the QC and SC Zones on the Bar-Gold claim. Most of the samples were taken from a depth of between 15 and 25cm. The depths on the QC and SC Zone grid were generally a little shallower due to the thinner cover. Depths here ranged from 10 to 20 cm on average. At each station approximately 0.2 Kg. of soil was collected and placed in a wet strength Kraft envelope, consecutively numbered with the sample number. All sample sites were marked by fluorescent flagging and labelled with the sample number, to permit relocation.

Stream sediment samples comprising sand and silt were collected from the middle and side areas within the active portions of Qualark Creek. The -80 mesh fraction was the primary target silt material. Only 4 silt samples were taken along Qualark Creek this season (Figure 6).

Chip-channel samples were collected from quartz veins and silicified zones in the dyke lithologies of Unit C and metasediment lithologies of Unit A found on the southeast Hillsbar #4 - Solomon - Flo-Gold claim grid. Continuous chip samples were collected by hammering along a line, approximately 4 cm wide, across dominant structural trends and vein trends at right angles to the structure. The chips and rock flour from each sample station were directed into consecutively numbered, plastic sample bags, held below the line of sampling. Approximately 1.5 Kg. of rock chips were collected from each sampled section and sites were marked for followup with labelled fluorescent flagging.

All samples were delivered to ACME Analytical Laboratories in Vancouver, B.C. for gold analysis by the following method: soil samples, silt samples and SC Zone rock chip samples were dried at 60°C and sieved to

-80 mesh. Rock chips are pulverized to -100 mesh. The sample are digested by

1. 10 gram samples in 250 ml beaker, ignited at 600° C for 4 hours.
2. Add 40 mls of 3:1:2: mixture of HCL:HNO3:H2O
3. Cover beaker with lids.
4. Boil in hot water bath for 1 hour.
5. Swirl samples 2 to 3 times within 1 hour.
6. Cool, add 60 ml of distilled water and settle
7. Pour 50 mls of leached solution using a graduated cylinder into a 100ml volumetric flask.
8. Add 10 mls of MIBK and 25mls of distilled water.
9. Shake 3 to 4 minutes in a shaker.
10. Add additional 25ml of distilled water to strip out excess iron.
11. Shake each flask 10 times.
12. Pour MIBK into container for graphite AA finish analysis to a 1 ppb gold detection limit.

Rock chip samples on which a metallics gold analysis was performed were crushed to 5 mm, then a 500 gm split was pulverized to -100 mesh. The entire sample was sieved through a 100 mesh screen, the -100 mesh was analyzed for gold by fire assay fusion from a 1 assay tonne. All the +100 mesh material was assayed by fire assay from a 1 assay tonne. The average gold value is then calculated from both -100 and +100 fractions. All the rock chip samples from the Harry claim (3 sample), the southeast Hillsbar #4 - Solomon - Flo-Gold grid and the QC Zone on the Bar-Gold claim were assayed in this fashion. The remaining samples on the SC Zone on the Bar-Gold claim were analyzed geochemically.

#### 11. DISCUSSION OF RESULTS AND CONCLUSIONS:

The work done during the first program along Qualark Creek was not successful in locating the old Hillsbar Mine portal, however its position has been narrowed down to an area within 200 meters upstream from the old mainline bridge crossing Qualark Creek. It is located approximately 50 meters above the creek in an area that has been covered with debris slides from the logging road located immediately upslope from the creek on the north side (south facing slope) of Qualark Creek. A small excavator may be required to carefully dig across this slide

zone to uncover the portal. The mapping conducted along the creek indicates that intrusive activity in the form of feldspar and hornblende porphyry diorite to granodiorite dykes and aplite dykes related to Mount Outran plutonism cuts Hozameen meta-cherts and meta-pelites in a similar fashion to the zone located further upstream where the old 790m Adit on the Hillsbar #3 vein was located in 1993. It appears that the dyking has come in along the same northwest trending Hillsbar Shear structure that crosses the Hillsbar #4 claim from its southeast corner which was the subject of detailed work in the second and third program on the old Holly Showing, to the northwest corner crossing Qualark Creek over a wider area. The silt sampling yielded a weak 21ppb (sample 96004) gold anomaly nearest the bridge at the start of the traverse (station 0+00E) and a strong anomaly of 110ppb gold at sample site 96006 station 3+05E. These anomalous areas are within 10 to 15 meters of contact zones between the feldspar and hornblende porphyry diorite to granodiorite dykes derived from Tertiary to Eocene Mt. Outran plutons located north of the area. The elevated gold values suggest the source is coming from the veining and alteration zones associated with the intrusion of the dykes along sheared zones of weakness in the Hozameen metasediments. Rock chip sample 96005 of a large aplite dyke yielded only trace amounts of gold so it is uncertain whether aplitic dyking has been source of gold mineralization. Some excavation of the covered contacts between the meta-chert and pelites of Unit A (Hozameen) and the dioritic dykes is warranted particularly 15 to 20 meters east of sample 96004 and 10 to 15 meters west of sample 96006 (station 3+05). Detailed channel sampling across the contacts is required. A small segment of possible Custer Gneiss is located adjacent to Hozameen metasediments near sample 96004. The gneiss itself is cut by a NW trending porphyritic diorite dyke of Unit C (Mount Outran). This suggests that the main contact between the Hozameen metasediment sequence and the Custer Gneiss is located in the near vicinity to the west.

The three rock chip samples taken from the bluffs on the north western part of the Harry claim yielded only trace amounts of gold (0.001 oz/tonne). The samples came from quartz biotite granitic dykes in hornblende porphyry dioritic host rocks which in turn, are in contact with metasediments of Unit A. Sulphide content generally ranged between

0.5% and 2%. As this was a small preliminary program little can be concluded from the results.

The second and third programs were carried out on a grid established over an area covering the very northern portion of the gold soil anomalies located on the old Holly showing by previous operators that were never assessed. This area is located on the southeast portion of the Hillsbar #4, Solomon and western Flo-Gold claims. Mapping indicates that a multiphase and multi composition dyke system intruded a major northwest trending dilatant shear zone in Hozameen series metasediments of Unit A. The dyke system is composed of feldspar diorite porphyry, feldspar granodiorite porphyry and fine grained diorites of Unit C related to the Mount Outran Tertiary to Eocene intrusive event. Intense and pervasive alteration in the form of quartz veining, silicification, clay (argillic), ankerite/siderite and pyrite mineralization are associated with the intrusion of the dyke. The alteration affects both the dyke rock of Unit C (C1, C2 and C3) and the Hozameen meta-cherts, phyllites, pelites and shales of Unit A (A1, A2) A minor amount of metavolcanics was observed (A3) but the intense alteration makes that analysis uncertain. The alteration appears to be less intense to the northwest where the dyke system narrow to approximately 40 meter wide. It intensifies southeasterly between lines 100+00E and 102+00E south of the Hillsbar#4 and Solomon claim boundary (Figure 7) where the dyke system increases in width to over 110 meters.

Rock chip sampling across veining and strongly altered dioritic to granodioritic dyke of Unit C and meta-cherts and meta-pelites of Unit A both indicate only trace values in gold. This did not help locate the source of the previously discovered gold in soil anomalies. The 1996 soil sampling however did confirm the earlier work as where a strongly anomalous area in the core area of intensely veined and silicified and otherwise altered dyke rocks and metasediments. One rock chip sample was taken across and northeasterly trending fault structure that crossed both the intrusive dyke rock and the metasediment eastern contact zone. This sample (MB-48) was the only anomalous rock sample giving an value of 0.004 oz/tonne gold. The anomalous soil samples located north of the Hillsbar #4 and Solomon claim line along and between Line 100+00E and 102+00E indicate the source of gold is coming from the erosion of the

intensely altered Mount Outran dykes and Hozameen series metasediments that are pervasively mineralized with very low grade gold or that the gold is eroding from fault structures related to the emplacement of the dykes along the dilatant fault/shear structure in the Hozameen rocks. Tensional cross faults/shears may also have acted and conduits for gold mineralization as indicated by sample MB-48. This postulation should be thoroughly tested by additional mapping and sampling to better understand the mineralizing events and thus better direct the exploration to locate a potential economic gold deposit.

The fourth program was conducted on the Bar-Gold claim where a weak gold in soil anomaly associated with a rusty gossanous zone was located in a 1990 exploration program. This anomaly now identified as the QC Zone (Figure 9) was mapped and sampled at 10 meter spacing along a small grid. During the course of work on the QC zone a parallel to sub-parallel linear gossan zone was discovered 700 meters south of the QC Zone. This zone is now identified as the SC Zone and trends north-northeasterly from the logging road near Suka Creek for a distance of 300 meters. The geological and sampling surveys conducted over the QC and SC zones identified narrow sulphide seams along healed fracture systems hosted in biotite granite to pegmatitic granite gneiss of the Custer Gneiss series. With assay results showing values only as high as 6 ppb gold in soils and trace values in gold in rock samples from the QC Zone and a high value of 5 ppb gold in soils and 6 ppb gold in rocks from the SC Zone it is apparent that the shear structures in the Custer Gneiss in this area is not gold enriched. The weathering of the sulphide seams consisting of finely disseminated pyrite, pyrrhotite and minor chalcopyrite, has produced the gossans associated with the zones.

## 12. RECOMMENDATIONS:

The following approach is suggested to further develop the gold potential on the property:

1. Priority 1 followup of the strong gold in soil anomalies located on the grid situated on the northern part of the old Holly showing. This is in view of the identification of two possible mineralizing sources within this dilatant zone. This area is located on the southeast section of the Hillsbar #4 claim and the Solomon and western Flo-Gold claim.

This followup should also extend southerly onto the Edgar Claim to determine the mineralizing structures, orientation and gold distribution in the known Zone.

a. Map in detail at a scale of 1:200 along the presently established lines. Add intermediate lines between Lines 100+00E and L101+00E and between Line 101+00E and 102+00E and between Lines 102+00E and 103+00E. Where terrain permits 5 more lines spaced 50 meters apart should be put in east of L103+00E. If mapping and sampling indicate positive results more lines should be added. The present lines and new lines should be extended another 200 meters to the south. Rock chip and soil sampling should be done on the new lines in the same manner as done in 1996, however a 10 meter spacing should be considered. Particular attention to fault and shear zones is required and detailed channel sampling should be done across them. Rock chip sampling should be done after a channel has been excavated using a plugger drill or hand held rock saw to obtain unweathered rock rather than surface exposures. Several helicopter pads should be brushed out in and around this area where terrain permits to allow the dropping off of heavy channel sampling tools and to lift out trench channel samples. The results of this program would hopefully lead to the generation of drill targets.

2. Priority 2 should be directed towards the continued effort to locate the Hillsbar Mine portal along the north bank of Qualark Creek within 200 meters upstream from the old mainline road bridge. If any of the old camp site can be found this would narrow down the search. A small excavator may be the only way to open the portal which would require some road work to bring the machine in. Detailed mapping at a scale of 1:200 and rock chip sampling should be conducted around the two anomalous silt samples (96004 & 96006) to locate possible sources of gold. If possible, hand excavation of the material above the contact zones between diorite to granodiorite dykes should be done. The exposed contacts should be channel sampled and mapped in detail.

3. Priority 3 should be the further investigation of the intrusive dyke and vein systems where they contact Hozameen metasediments and metavolcanics on the Harry claim. This work should be done at a

reconnaissance of 1:2000 and should continue westward onto the Victor claim and eastward onto the Barb claim. Soil sampling should be done at 100 meter intervals initially along traverses running parallel to contours. If any mineralization is found during the course of mapping and sampling a small grid (2 to 3 lines 50 meters apart) should be established around the site and samples taken at 25 meter intervals.

4. Priority 4 should be restricted to a small continued survey of the QC zone on the Bar-Gold claim. Two more lines west of the logging road parallel to the present grid should be put in and mapped and sampled. Based on the 1996 results, the QC and SC Zones are believed to host little gold potential. However, the Bar-Gold claim forms part of a mineral group which covers a number of historical workings found along Qualark Creek. Because of this, it is recommended that the claim remain part of the grouping until such time that additional work has been conducted in the surrounding area.

### **13. REFERENCES:**

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### 13. REFERENCES Continued

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14. STATEMENTS OF QUALIFICATIONS:

## STATEMENT OF QUALIFICATIONS

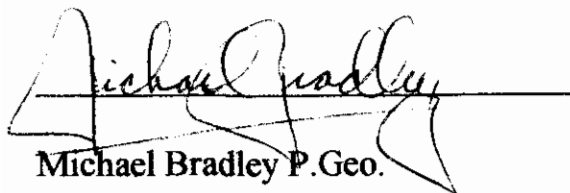
I, Michael Bradley of Mike Bradley and Associates with an office at 4750 Westlawn Drive, Burnby, B.C. V5C 3R3 have the following qualifications:

1. I graduated from the University of B.C. in 1973 with a B.Sc. in Physics and Geology.
2. I received an M.Sc. Degree from the Scripps Institute of Oceanography in La Jolla, California, in 1975.
3. I am a member of the Association of Professional Engineers and Geoscientists of B.C. since 1993.
4. I am a member of the Association of Exploration Geochemists, since 1988.
5. I have been continuously employed as an exploration geologist since 1975, working as an employee of BP Canada until 1989 and to the present as a consultant.
6. I have held all executive positions in the Vancouver Mining and Exploration Group (M.E.G.) and am a member of the B.C. & Yukon Chamber of Mines and the Canadian Institute of Mining and Metallurgy.

All costs associated with this report were paid by Hillsbar Gold Inc., the registered owner of the Hillsbar groups of claims.

I do not hold shares directly or indirectly in Hillsbar Gold Inc.

I hereby grant permission to Hillsbar Gold Inc. to reproduce this report in whole or part, providing that such excerpts do not misrepresent the facts and intent of the whole.

  
Michael Bradley P. Geo.

Dated: November 16, 1996

## APPENDIX 1A.

### PROFESSIONAL CERTIFICATE OF QUALIFICATIONS

I, Daniel G. Cardinal, do hereby certify that:

- 1) I reside in Hope, British Columbia, mailing address: P.O. Box 594, Hope, BC, VOX 1L0.
- 2) I' am a graduate of the University of Alberta, Edmonton, AB in 1978, with BSc. degree in Geology.
- 3) I have been actively involved in the field of geology and mining since my graduation.
- 4) I' am a member in good standing with the: Association of Professional Engineers and Geoscientists of BC, (P.Geo.); Association of Professional Engineers, Geologists and Geophysicists of Alberta, (P.Geol.); and, a Fellow of the Geological Associaton of Canada (F.G.A.C.).
- 5) I have conducted the field work documented in this report.
- 6) I have no direct or indirect interests, nor do I expect to recieve any interest on the Bar-Gold mineral claim or on any of the related contiguous mineral claims.

Signed in Hope, British Columbia, this 22nd day of November, 1996.



D.(Dan) G. Cardinal, BSc., P.Geo., F.G.A.C.

## STATEMENT OF QUALIFICATIONS

I, Brian Lennan of 876 Lynwood Avenue, Port Coquitlam, B.C. V3B 5W6 do hereby certify that I have the following qualifications:

1. I graduated from the University of British Columbia in 1973 with a B.Sc. in Geology.
2. I am a member of the Association of Professional Engineers and Geoscientists of B.C. since 1992.
3. I am a Fellow of the Geological Association of Canada.
4. I am a member of Canadian Institute of Mining and Metallurgy.
5. I have been continuously employed as an exploration geologist since 1973, working as an employee of Canada Tungsten Mining Corp. until 1986 and to the present as a contract geologist.
6. I have worked on the Hillsbar Property for Mike Bradley and Associates in the past and present and have compiled this report from data supplied from work done in the field by Mike Bradley, P.Geo. and Dan G. Cardinal, P.Geo.

All costs associated with this report were paid by Hillsbar Gold Inc., the registered owner of the claims belonging to the Hillsbar Property.

I do not hold shares directly or indirectly in Hillsbar Gold Inc.

I hereby grant permission to Hillsbar Gold Inc. to reproduce this report in whole or in part, providing that such excerpts do not misrepresent the facts and intent of the whole.

*Brian Lennan*

Dated November 28, 1996

Brian Lennan, P.Geo.

## APPENDICES

APPENDIX 1. STATEMENT OF COSTS

APPENDIX 2. ROCK CHIP SAMPLE DESCRIPTIONS & ANALYTICAL RESULTS

APPENDIX 3. GEOCHEMICAL SAMPLES - ANALYTICAL RESULTS.

**APPENDIX 1**

**STATEMENT OF COSTS**



## STATEMENT OF COSTS

### 1. CONSULTING: Fieldwork

#### Geologists

M. Bradley: July. 26 -29,1996 3.5d x \$375/d = \$1312.50  
Sept. 6 - 10,1996 4.5d x \$375/d = \$1687.50  
Sept. 26 -26,1996 6.0d x \$375/d = \$2250.00  
D. Cardinal Oct. 29, 30 & Nov. 12 - 15,1996  
6d x \$300/d = \$1800.00  
B. Lennan July. 2 - 5,1996 1.88d x \$300/d = \$ 563.89  
Oct. 25,1996 1d x \$300/d = \$ 300.00

#### Field Assistants

A. Choquer July. 26 -29,1996 4d x \$375/d = \$1500.00  
(above included truck, gas &  
ferry from Sechelt)  
J. Bradley Sept. 7 - 10,1996 4d x \$75/d = \$ 300.00  
B. Purcell Sept. 7 - 10,1996 4d x \$125/d = \$ 500.00  
R. Zasitko Sept. 21 -24,1996 4d x \$75/d = \$ 300.00  
David Kay Oct. 29, 30 & Nov. 12 - 15,1996  
6d x \$125/d = \$ 750.00  
Subtotal labour = \$11263.89 \$11263.89

HELICOPTER Valley Helicopters, Hope B.C. = \$6708.94  
Bell 206 8.07 hrs x \$831.39/hr  
wet.

ANALYTICAL Acme Analytical Laboratories  
97 soil samples  
75 rock samples  
4 silt samples  
sample prep., geochemical analysis  
and fire assay and metallics = \$2425.10

ACCOMODATION AND MEALS In Hope -  
4 programs = \$ 283.91

FOOD - Groceries for 3 camp set ups = \$ 354.56

SUPPLIES: = \$ 169.81  
(propane, flagging, kraft & plastic bags, etc.)

CAMP CHARGE: (M.Bradley kitchen & tent, etc. supplies)  
\$50.00 x 11 days = \$ 550.00

#### TRANSPORTATION: (M.Bradley)

Gas: \$ 51.75  
Mileage: 630Km x \$0.25/Km= 157.50  
B.Lennan truck rental (4x4)  
2 days x \$55/d \$110.00  
Mileage: 540km x \$0.15/km = \$ 81.00  
Gas: \$ 80.00  
Total Transportation = \$ 480.25

STATEMENT OF COSTS cont'd

COMMUNICATIONS: (Phone & Fax) = \$ 57.29  
Subtotal Field Expenses = \$11144.16 \$11144.16

REPORT PREPARATION: Mike Bradley & Associates

B. Lennan: 7 days @ \$300/d = \$2100.00  
D. Cardinal 4 days @ \$300/d = \$1200.00  
Drafting (F.Chong): = \$ 720.63  
Reproduction, maps, copies: = \$ 166.63  
Subtotal \$4187.26 \$4187.26

**GRAND TOTAL OF ASSESSMENT WORK COSTS \$27620.31**

Apportionment of total costs to the Hillsbar #4, John Walters, Victor, Harry, Flo-Gold, Hillsbar 3 & Solomon claims = \$15,520.31

Apportionment of total costs to the Bar-Gold, Hillsbar 2, Hillsbar 1, Mike, Barb, Edgar & Louise claim = \$12,100.00

**APPENDIX 2**

**ROCK SAMPLE DESCRIPTIONS & ANALYTICAL RESULTS**

## ROCK CHIP/CHANNEL, SOIL & SILT SAMPLE DESCRIPTIONS

SAMPLE NUMBER	ASSAY RESULT (opt Au) (ppb Au)	SAMPLE TYPE Length cm	DESCRIPTION
96001	<0.001	100	Quartz biotite dykes, 0.3 - 1.0 m wide @ 110°/20°N invade breccia zones in hornblende porphyry diorite host.
96002	<0.001	grab	Quartz feldspar pyritic porphyry to pegmatite with 1 - 2% f.g. disseminated pyrite in 1m <sup>3</sup> float blocks.
96003	<0.001	100	1.2 m wide zone of 1 - 5mm quartz veinlets in foliated hornblende schist @ 170°/80°E.
96004	21 ppb	active silt	Qualark Creek - start of traverse 0+00E.
96005	<0.001	grab	Rusty weathering aplite dyke - 075°/75°SE cuts meta-pelite.
96006	110 ppb	active silt	3+05E on Qualark Creek traverse.
96007	8 ppb	active silt	5+97E on Qualark Creek traverse.
96008	7 ppb	active silt	8+22E on Qualark Creek traverse.
MB-12	5 ppb	soil	25 cm deep near outcrop, medium orange to brown BF. 30% mixed angular and subrounded rock fragments. Sandy soil.
MB-13	2 ppb	soil	20 deep adjacent to MB-12.
MB-14	<0.001	100cm	Rock chip across contact between f.g., medium to dk. green, 40cm meta-volcanic(?) inclusion or bed in light grey subporphyritic diorite. Contact trends 115°/75°SW. Qtz veins in diorite; 0.1 - 1.5cm wide @ 120°/80°SW.
MB-15	<0.001	80 cm	White to grey bull qtz vein with local clots of chlorite and f.g. disseminated py to 0.5%. Trends 116°/80°SW in diorite.
MB-16	<0.001	40 cm	0.2 - 2.0cm wide qtz veins contain 0.5% py in caly altered diorite.
MB-17	<0.001	100 cm	Rock chip across vuggy, white, qtz veins in a metachert in contact with diorite dyke.
MB-18	<0.001	100 cm	Chip across zone of 2 - 4cm qtz veins in 020°/20°NW jointed, clay altered diorite.
MB-19	<0.001	300 cm	Random chips of folia form 0.1 - 1.0cm qtz veins 162°/90°.
MB-20	0.001	200cm x 4cm	Rock chip at 220° across silicified zone in metaseds which trend 122°.
MB-21	<0.001	120cm x 4cm	Rock chip at 2200 continuation from MB-20. Silicified metased (phyllites?) with 1% pyrite.
MB-22	<0.001	200cm x 4cm	Rock chip at 220° continuation from MB-21. Silicified metaseds with clay altered feldspathic inclusions. 0.5% fine grained pyrite.
MB-23	<0.001	300cm x 4cm	Rock chip along 200° continuation from MB-22 but starting 6m below MB-23 on bluff face. Chip across quartz vein zone in metaseds. Veins 1 - 30 cm wide at 122°/80°NE and 055° - 065°/60 - 80°SE.
MB-24	<0.001	350cm x 4cm	Rock chip continues along 220° from MB-23 in rusty and silicified metaseds with 1.2m quartz vein.
MB-25	2 ppb	soil	20 cm deep, BF horizon dark brown crumbly with 15% clay.
MB-26	1 ppb	soil	25 cm deep, BF horizon, dark brown with orange mottling.
MB-27	8 ppb	soil	30 cm deep, BF horizon, dark red brown.
MB-28	<0.001	50cm x 4cm	Rock chip in 30 - 40cm wide, white & grey mottled quartz vein (010°/90°) in sheared sub-porphyritic feldspar diorite.
MB-29	3 ppb	soil	20 cm deep, BF horizon, colluvial soil, dark brown.
MB-30	5 ppb	soil	20 cm deep, BF horizon, colluvial soil, dark brown.
MB-31	300 ppb	soil	20 cm deep, BF horizon, colluvial soil, dark brown.
MB-32	1664 ppb	soil	25 cm deep, C horizon, dark brown soil with 20% fragments of black phyllite (slate?).
MB-33	<0.001	Random	Rock chip across 3 - 4m wide dyke of sub-porphyritic diorite to granodiorite.
MB-34	82 ppb	soil	20 cm deep, BF horizon, medium red brown coloured.
MB-35	3 ppb	soil	20 cm deep, BF horizon, medium red brown coloured.
MB-36	<0.001	100cm x 4cm	Rock chip across moderately chloritized, med. grained sub-porphyritic granodiorite cut by 25cm wide quartz vein trending 094°/75°SW.
MB-37	41 ppb	soil	15 cm deep, BF horizon, medium brown to red brown mottled coloured.

SAMPLE NUMBER	ASSAY RESULT (opt Au) (ppb Au)	SAMPLE TYPE Length cm	DESCRIPTION
MB-38	13 ppb	soil	20 cm deep, C horizon, dark brown soil with talus fragments of granodiorite and quartz vein material.
MB-39	157 ppb	soil	30 cm deep, B horizon, medium dark brown soil above metavolcanic.
MB-40	<0.001	200cm x 4cm	Rock chip across 2m wide feldspar porphyry diorite dyke with 0.5% pyrite - cut by white quartz veins 1 - 15cm wide @ 105°/20°N and 035°/90°.
MB-41	<0.001	Random	Rock chip across 2 - 25cm wide low angle quartz veins.
MB-42	363 ppb	soil	30 cm deep, B horizon, medium orange - red brown coloured with 20% angular rock fragments.
MB-43	141 ppb	soil	25 cm deep, BT horizon with 35% angular rock fragments, dark brown with clay in matrix.
MB-44	0.001	Float/Talus	Collected adjacent to o/c of altered granodiorite with 1.5% pyrite in close spaced fractures.
MB-45	<0.001	100cm x 4cm	Feldspar Porphyry Diorite with 0.5% pyrite; cut by 1 - 7cm white & grey, in part, rusty quartz veins @ 155°/30°SW and 080°/90°.
MB-46	<0.001	60cm x 4cm	Vertical rock chip across a 40cm wide quartz vein trending 124°/10°SW in porphyritic diorite.
MB-47	0.001	100cm x 4cm	Horizontal rock chip across oxidized fault and quartz vein @ 065°/90°.
MB-48	0.004	100cm x 4cm	Rock chip across subvertical fault with 0.1 to 7cm wide quartz veins. Fault trends 020°/90°.
MB-49	0.001	70cm x 4cm	Rock chip continues easterly from sample MB-48.
MB-50	<0.001	100cm x 4cm	Rock chip across feldspar porphyry granodiorite cut by pyritic quartz veinlets trending 085°/85°SE.
MB-51	<0.001	100cm x 4cm	Rock chip continues from MB-50; includes 2 - 10cm quartz veins 070°/75°SE in feldspar porph. granodiorite.
MB-52	<0.001	100cm x 4cm	Rock chip continues from MB-51 in granodiorite. Quartz veins & stringers included in sample.
MB-53	0.002	100cm x 4cm	Rock chip in feldspar quartz porphyry diorite; chloritized with +1% pyrite. Cut by 4 to 5cm wide quartz veins trending 095°/90 to 045°/80°SE.
MB-54	<0.002	100cm x 4cm	Rock chip in feldspar quartz porphyry diorite; continues from MB-53.
MB-55	100 ppb	soil	15 cm deep, dark brown B or C horizon colluvial soil with feldspar porph. diorite adjacent to sample.
MB-56	127 ppb	soil	40 cm deep; dark brown Ao to B horizon with 25% < 1cm dia. rock frags. and 10% humus.
MB-57	0.002	71cm x 4cm	Rock chip of 0.71m wide quartz vein @115°/30°SW.
MB-58	<0.001	100cm x 4cm	Rock chip of feldspar quartz porphyry granodiorite which hosts qtz vein in sample MB-57.
MB-59	171 ppb	soil	25 cm deep; B horizon, dark brown soil with 15% angular rock frags.
MB-60	0.001	100cm x 4cm	Rock chip across 20 to 40cm wide pyritic (1 - 5%) quartz vein @ 120°/20°SW.
MB-61	597 ppb	soil	15 cm deep, BT horizon, dark brown soil with 15% humus.
MB-62	0.001	100cm x 4cm	Rock chip across feldspar quartz porph. granodiorite with 2% fine grained pyrite and 1 - 3 cm wide quartz veins.
MB-63	63 ppb	soil	20 cm deep, BT horizon, dark brown colluvial soil with talus rock frags. Slope is 70°.
MB-64	<0.001	60cm x 4cm	Rock chip across silicified feldspar quartz porph. granodiorite cut by +1cm wide qtz veins containing 3 - 8% fine grained pyrite. Clay and ankerite alteration.
MB-65	<0.001	100cm x 4cm	Rock chip across orange weathering, silicified, pyritic (1 - 5%) feldspar quartz porph. granodiorite. 2 cm wide pyritic qtz veins @ 150°/75°NE.
MB-66	66 ppb	soil	20 cm deep, B horizon, dark brown soil with 30% feldspar quartz porph. granodiorite fragments.
MB-67	<0.001	100cm x 4cm	Rock chip across pyritic feldspar porph. granodiorite cut by several 10 - 15cm wide qtz veins @ 080°/25°SE, 030°/90°, 050°/40°NW.
MB-68	45 ppb	soil	10 cm deep, B horizon, dark brown soil with 15% humus & 40% angular rock frags.
MB-69	71 ppb	soil	25 cm deep, B horizon, medium red brown soil mixed with colluvium and alluvium.
MB-70	406 ppb	soil	35 cm deep, B & C horizon, dark brown clay and silt rich from talus fines.

SAMPLE NUMBER	ASSAY RESULT (opt Au) (ppb Au)	SAMPLE TYPE Length cm	DESCRIPTION
MB-71	<0.001	100cm x 4cm	Rock chip across a quartz rod structure as a fold replacement @ 118°/5°E.
MB-72	6 ppb	soil	20 cm deep, BF horizon, Medium red-orange coloured, silty with shale & feldspar porph granodirite frags.
MB-73	3 ppb	soil	20 cm deep, BF horizon as in sample MB-72.
MB-74	3 ppb	soil	20 cm deep, BF horizon, medium orange-brown colour with silty matrix.
MB-75	<0.001	40cm x 4cm	Rock chip in meta-chert. Zone is silicified, chloritized and rusty with 5% pyrite. Trends 090°/90°.
MB-76	<0.001	100cm x 4cm	Rock chip across meta-chert, has 3, 10 - 15cm wide podiform bull quartz veins.
MB-77	<0.001	100cm x 4cm	Rock chip across folia form white & rusty bull quartz sweat in meta-chert.
MB-78	3 ppb	soil	15 cm deep, BF horizon, medium red-brown sandy soil, well drained area.
MB-79	28 ppb	soil	30 cm deep, B horizon, Dark brown with abundant talus fines & 10% humus.
MB-80	48 ppb	soil	25 cm deep, B horizon, Red mottled medium brown with 20% < 1cm dia. rock fragments.
MB-81	7 ppb	soil	25 cm deep, B horizon, red brown, silty, alluvial? soil.
MB-82	3 ppb	soil	20 cm deep, B horizon, dark brown, silty & colluvial soil.
MB-83	<0.001	100cm x 4cm	Rock chip across rusty weathering, interbanded siltstone & shale with foliation @ 095°/80°NW.
MB-84	<0.001	100cm x 4cm	Rock chip across several 1 cm scale white quartz veinlets and feldspar porph. dioritic dykes - possible contact zone between diorite - granodiorite porphyry intrusives and metasediments.

**APPENDIX 3**

**GEOCHEMICAL SAMPLES - ANALYTICAL RESULTS**



## ASSAY CERTIFICATE



Mike Bradley & Associates PROJECT HARVIC File # 96-4778 Page 1

4750 Westlawn Drive, Burnaby BC V5C 3R3

SAMPLE#	S.Wt gm	Au+100 mg	+100 gm	Au-100 opt	NAu mg	AvgAu opt	DupAu opt
96001	660	<.001	10.4	<.001	<.01	<.001	-
96002	680	<.001	15.1	<.001	<.01	<.001	-
96003	720	<.001	12.2	<.001	<.01	<.001	-
96005	780	<.001	33.4	<.001	<.01	<.001	-
MB-14	520	<.001	21.6	<.001	<.01	<.001	-
MB-15	500	<.001	28.4	<.001	<.01	<.001	-
MB-16	580	<.001	19.6	<.001	<.01	<.001	-
MB-17	500	<.001	20.0	<.001	<.01	<.001	-
MB-18	570	<.001	16.4	<.001	<.01	<.001	-
MB-19	560	<.001	14.9	<.001	<.01	<.001	-
MB-20	600	.001	37.7	.001	<.01	.001	-
MB-21	720	<.001	35.3	<.001	<.01	<.001	-
MB-22	700	<.001	25.3	<.001	<.01	<.001	-
MB-23	570	<.001	23.4	<.001	<.01	<.001	-
MB-24	650	<.001	36.2	<.001	<.01	<.001	-
MB-28	360	<.001	33.5	<.001	<.01	<.001	-
MB-33	500	<.001	19.5	<.001	<.01	<.001	<.001
MB-36	700	<.001	22.0	<.001	<.01	<.001	-
MB-40	400	<.001	19.5	<.001	<.01	<.001	-
MB-41	500	<.001	36.8	<.001	<.01	<.001	-
MB-44	500	.001	19.1	.001	<.01	.001	-
MB-45	420	<.001	30.2	<.001	<.01	<.001	-
MB-46	640	<.001	33.5	<.001	<.01	<.001	-
MB-47	650	.001	29.4	.001	<.01	.001	-
MB-48	610	.004	16.4	.004	<.01	.004	-
MB-49	685	.001	17.3	.001	<.01	.001	-
MB-50	593	<.001	25.0	<.001	<.01	<.001	-
MB-51	648	<.001	31.1	<.001	<.01	<.001	-
MB-52	690	<.001	28.8	<.001	<.01	<.001	-
MB-53	649	.002	27.4	.002	<.01	.002	-
MB-54	792	<.001	32.5	<.001	<.01	<.001	-
MB-57	569	.002	24.9	.002	<.01	.002	-
MB-58	640	<.001	17.9	<.001	<.01	<.001	-
MB-60	626	.001	21.6	.001	<.01	.001	-

-100 AU BY FIRE ASSAY FROM 1 A.T. SAMPLE. DUPAU: AU DUPLICATED FROM -100 MESH. +100 AU - TOTAL SAMPLE FIRE ASSAY.  
- SAMPLE TYPE: P1 TO P2 ROCK P3 SILT P4 SOIL

DATE RECEIVED: SEP 26 1996 DATE REPORT MAILED: *Oct 5/96* SIGNED BY: *[Signature]* D. FOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS





ASSAY CERTIFICATE



Mike Bradley & Associates PROJECT HARVIC File # 96-4778 Page 2  
 4750 Westlawn Drive, Burnaby BC V5C 3R3

SAMPLE#	S.Wt gm	Au+100 mg	+100 gm	Au-100 opt	NAu mg	AvgAu opt	DupAu opt
MB-62	548	<.001	21.3	.001	<.01	.001	-
MB-64	587	<.001	16.3	<.001	<.01	<.001	-
MB-65	590	<.001	21.6	<.001	<.01	<.001	-
MB-67	517	<.001	16.3	<.001	<.01	<.001	-
MB-71	671	<.001	14.4	<.001	<.01	<.001	-
MB-75	682	<.001	25.8	<.001	<.01	<.001	-
MB-76	557	<.001	26.5	<.001	<.01	<.001	-.000
MB-77	604	<.001	17.6	<.001	<.01	<.001	-
MB-83	439	<.001	28.3	<.001	<.01	<.001	-
MB-84	511	<.001	28.4	<.001	<.01	<.001	-

-100 AU BY FIRE ASSAY FROM 1 A.T. SAMPLE. DUPAU: AU DUPLICATED FROM -100 MESH. +100 AU - TOTAL SAMPLE FIRE ASSAY.  
 - SAMPLE TYPE: P1 TO P2 ROCK P3 SILT P4 SOIL

DATE RECEIVED: SEP 26 1996 DATE REPORT MAILED: *Oct 5/96* SIGNED BY: *[Signature]* D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS



GEOCHEMICAL ANALYSIS CERTIFICATE



Mike Bradley & Associates PROJECT HARVIC File # 96-4778 Page 3  
4750 Westlawn Drive, Burnaby BC V5C 3R3

SAMPLE#	Au* ppb
96004	21
96006	110
96007	8
96008	7
RE 96008	6

- SAMPLE TYPE: P1 TO P2 ROCK P3 SILT P4 SOIL AU\* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.  
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 26 1996 DATE REPORT MAILED: *Oct 5/96* SIGNED BY: *[Signature]* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS



SAMPLE#	Au <sup>•</sup> ppb
MB-12	5
MB-13	2
MB-25	2
MB-26	1
MB-27	8
MB-29	3
MB-30	5
MB-31	300
MB-32	1664
MB-34	82
MB-35	3
MB-37	41
MB-38	13
MB-39	157
MB-42	363
MB-43	141
MB-55	100
MB-56	127
MB-59	171
MB-61	597
RE MB-72	6
MB-63	69
MB-66	61
MB-68	45
MB-69	71
MB-70	406
MB-72	6
MB-73	3
MB-74	3
MB-78	3
MB-79	28
MB-80	48
MB-81	7
MB-82	3
STANDARD AU-S	46

Sample type: -150 SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

ASSAY CERTIFICATE



Mike Bradley & Associates PROJECT HARVIC File # 96-5901 Page 1  
 4750 Westlawn Drive, Burnaby BC V5C 3R3 Submitted by: Brian Lennan

SAMPLE#	S.Wt gm	Au+100 mg	+100 gm	Au-100 opt	NAu mg	AvgAu opt	DupAu opt
QC/R1	524	<.001	17.2	.001	<.01	.001	-
QC/R2	545	.001	9.1	<.001	<.01	<.001	-
QC/R3	576	<.001	20.1	<.001	<.01	<.001	-
QC/R4	543	<.001	18.5	<.001	<.01	<.001	-
QC/R5	582	<.001	20.5	<.001	<.01	<.001	<.001
QC/R6	463	<.001	17.2	<.001	<.01	<.001	-
QC/R8	507	<.001	14.2	<.001	<.01	<.001	-

-100 AU BY FIRE ASSAY FROM 1 A.T. SAMPLE. DUPAU: AU DUPLICATED FROM -100 MESH. +100 AU - TOTAL SAMPLE FIRE ASSAY.  
 - SAMPLE TYPE: P1 ROCK P2 SOIL

DATE RECEIVED: NOV 12 1996 DATE REPORT MAILED: Nov 15/96 SIGNED BY: *C. Leong* .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS



GEOCHEMICAL ANALYSIS CERTIFICATE



Mike Bradley & Associates PROJECT HARVIC File # 96-5901 Page 2  
 4750 Westlawn Drive, Burnaby BC V5C 3R3 Submitted by: Brian Lennan

SAMPLE#	Au* ppb
QC/S1	2
QC/S2	1
QC/S3	2
QC/S4	1
QC/S5	<1
QC/S6	1
RE QC/S6	3
QC/S7	1
QC/S8	<1
STANDARD AU-S	44

- SAMPLE TYPE: P1 ROCK P2 SOIL AU\* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)  
 Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: NOV 12 1996 DATE REPORT MAILED: Nov 15 / 96 SIGNED BY: *Chy* D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS



## GEOCHEMICAL ANALYSIS CERTIFICATE



Mike Bradley & Associates PROJECT HARVIC File # 96-6060 Page 1

4750 Westlawn Drive, Burnaby BC V5C 3R3

SAMPLE#

Au\*  
ppb

QC/R7	1
SC/R1	<1
SC/R2	1
SC/R3	1
SC/R4	<1
SC/R5	<1
SC/R6	1
SC/R7	<1
SC/R8	<1
SC/R9	6
SC/R10	1
SC/R11	1
SC/R12	1
SC/R13	1
SC/R14	1
RE SC/R14	1
SC/R15	<1
SC/R16	<1
SC/R17	<1
SC/R18	<1
SC/R19	<1
SC/R20	<1
SC/R21	1
SC/R22	<1
SC/R23	<1
STANDARD AU-R	518

- SAMPLE TYPE: P1 ROCK P2 TO P3 SOIL AU\* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)  
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: NOV 18 1996

DATE REPORT MAILED: Nov 21/96

SIGNED BY: *C. Leong* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

SAMPLE#	Au* ppb
QC/S9	2
QC/S10	1
QC/S11	<1
QC/S12	<1
QC/S13	2
QC/S14	6
QC/S15	2
QC/S16	1
SC/S1	1
SC/S2	1
SC/S3	2
SC/S4	<1
SC/S5	<1
SC/S6	2
SC/S7	1
SC/S8	1
SC/S9	<1
SC/S10	<1
SC/S11	<1
SC/S12	<1
RE SC/S12	<1
SC/S13	<1
SC/S14	3
SC/S15	<1
SC/S16	<1
SC/S17	1
SC/S18	<1
SC/S19	2
SC/S20	5
SC/S21	<1
SC/S22	1
SC/S23	2
SC/S24	3
SC/S25	1
SC/S26	<1
STANDARD AU-S	49

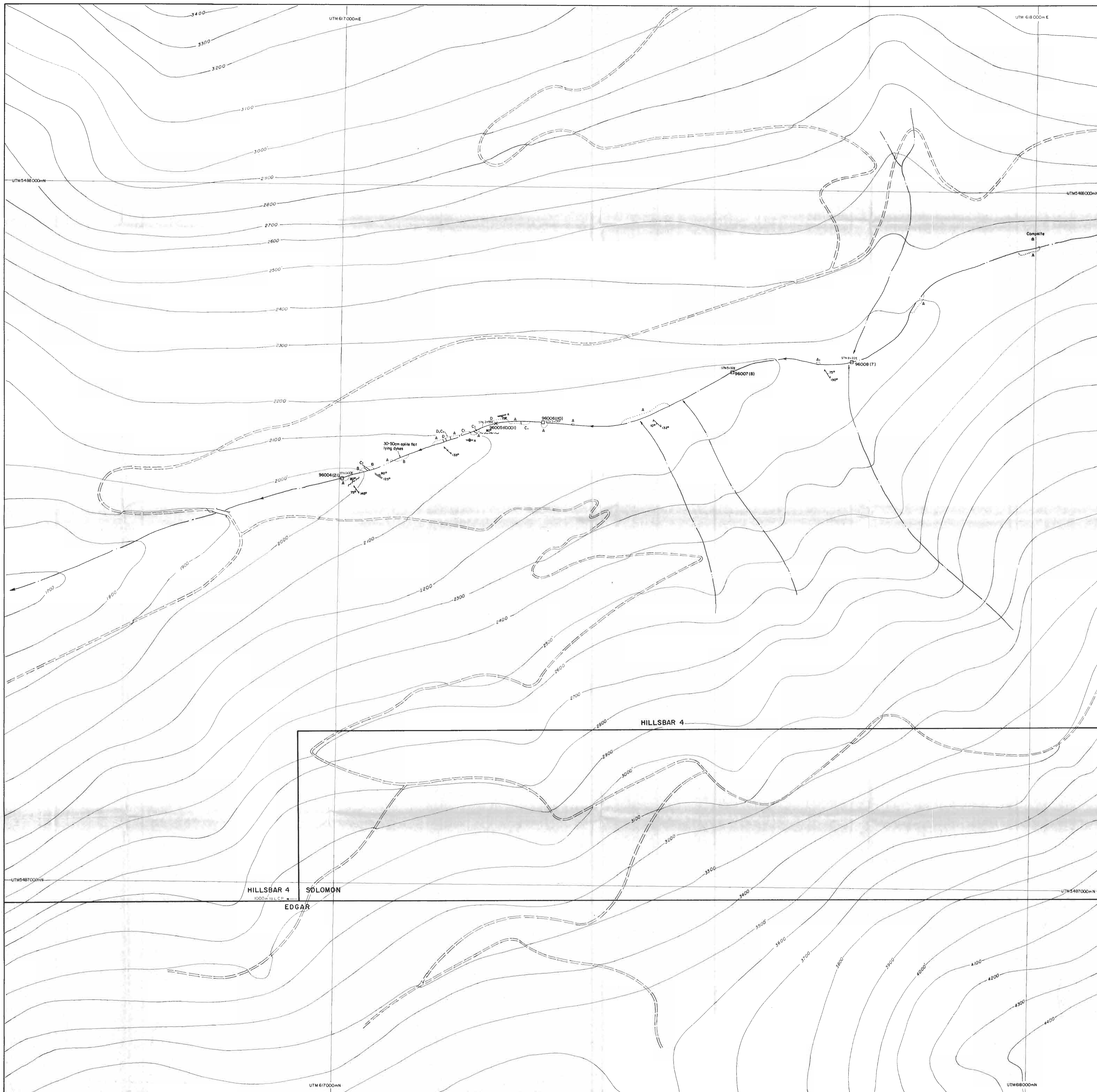
Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.



SAMPLE#	Au* ppb
SC/S27	1
SC/S28	2
SC/S29	3
SC/S30	1
SC/S31	<1
SC/S32	1
SC/S33	<1
SC/S34	1
SC/S35	<1
SC/S36	<1
SC/S37	1
SC/S38	<1
SC/S39	1
SC/S40	1
SC/S41	1
SC/S42	1
RE SC/S43	2
SC/S43	1
SC/S44	2
SC/S45	1
SC/S46	1
SC/S48	1
SC/S49	3
STANDARD AU-S	54

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.





- LEGEND**
- TERTIARY EOCENE**
- MOUNT OUTRAN PLUTONS**
- D Aplite
  - C Granodiorite:
    - C1 feldspar diorite porphyry B hornblende diorite
    - C2 feldspar granodiorite porphyry
    - C3 fine grained diorite
- CRETACEOUS OR TERTIARY ? CUSTER GNEISS ?**
- B Biotite granite gneiss
  - Bs chlorite schist
- PERMIAN TO JURASSIC HOZAMEEN COMPLEX**
- A Undifferentiated chert, pelites, mafic volcanics
    - A1 argillite, shale, locally strole
    - A2 thin bedded ribbon chert, interbedded siliceous shales/ slate, argillite
- ? Contact (defined, inferred, uncertain)
- Joint, showing strike & dip
- Dyke, showing strike & dip
- Quartz vein, showing strike & dip
- Shear, showing strike & dip
- Cleavage, showing strike & dip
- Adit
- Outcrop
- Legal corner post
- △ Camp location
- 96005(25)(10.002) Sample №. (ppb or opt Au)
- X, O, □, ○ Sample types - rock, soil, sediment, heavy mineral
- Logging roads - partially eroded
- Bridge
- Major creek
- Subsidiary creek
- 2500— Contour line with elevation in feet - 100ft interval

GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT

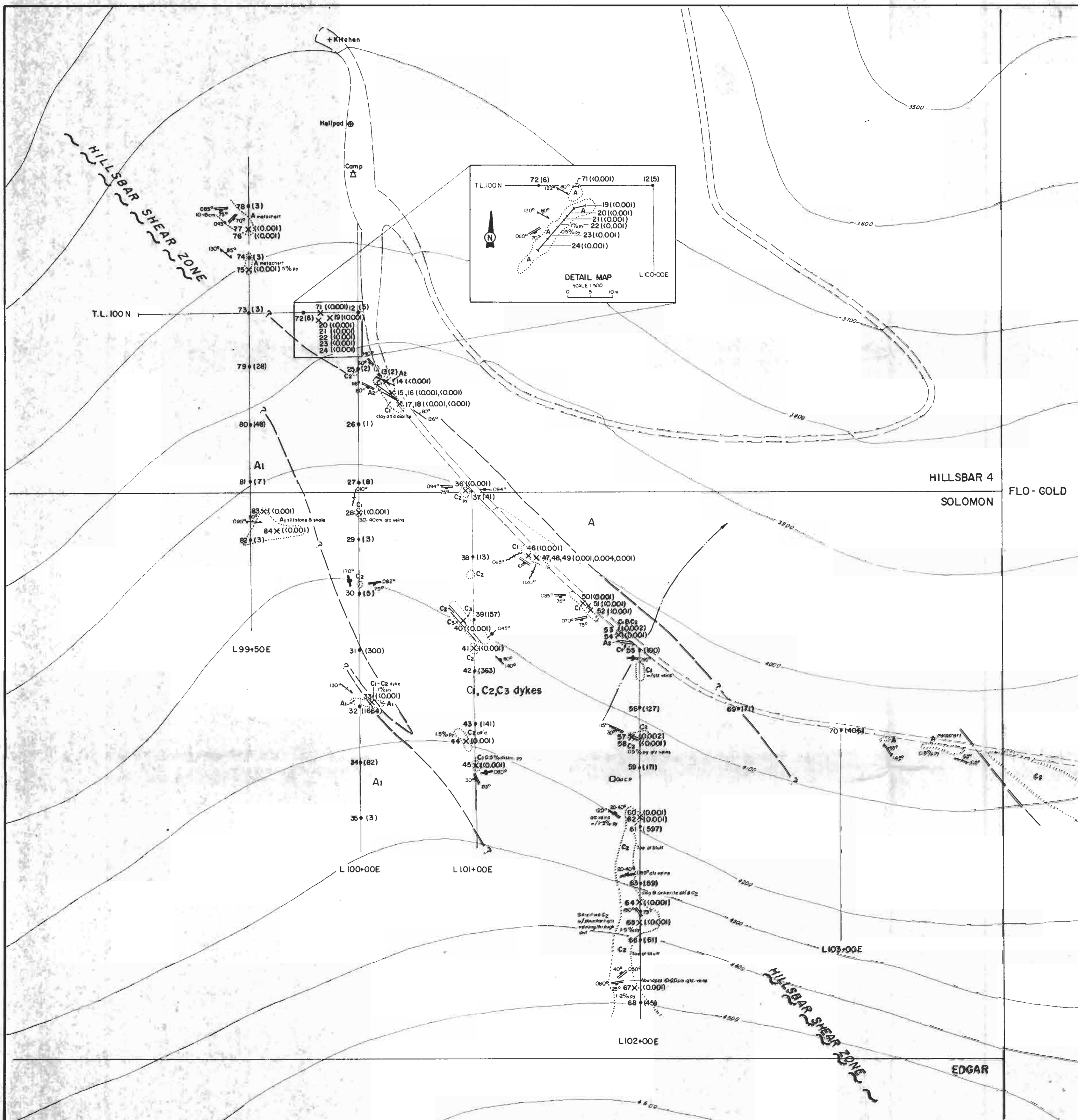
**24,731**

0 50 100 200 metres

MIKE BRADLEY & ASSOCIATES  
HILLSBAR GOLD INC.  
HILLSBAR PROPERTY

**PLAN OF GEOLOGICAL SURVEY &  
GOLD GEOCHEMICAL RESULTS  
HILLSBAR #4 CLAIM  
QUALARK CREEK DETAIL AREA**

SCALE 1:2000    NTS. 92H/11W    DRAWN BY: B.L.    DATE: NOV. 1996    FIGURE №. 6



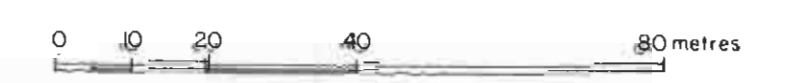
**LEGEND**

- TERTIARY EOCENE MOUNT OUTRAN PLUTONS**
- D** Aplite
  - C** Grenodiorite:
    - C1 feldspar diorite porphyry & hornblende diorite
    - C2 feldspar granodiorite porphyry
    - C3 fine grained diorite
- CRETACEOUS OR TERTIARY ? CUSTER GNEISS ?**
- B** Biotite granite gneiss
  - Bi** chlorite schist
- PERMIAN TO JURASSIC HOZAMEEN COMPLEX**
- A** Undifferentiated chert, pelites, mafic volcanics
    - A1 argillite, shale, locally shale
    - A2 thin beds ribbon chert, interbedded siliceous shales/slate, argillite
- Geological Features:**
- ? Contact (defined, inferred, uncertain)
  - Joint, showing strike & dip
  - Dyke, showing strike & dip
  - Quartz vein, showing strike & dip
  - Shear, showing strike & dip
  - Cleavage, showing strike & dip
  - Adit
  - Outcrop
  - Legal corner post
  - Camp location
- Sample NE (ppb or apt Au)**
- Sample types: rock, soil, sediment, heavy mineral**
- Logging roads - partially eroded**
- Bridge**
- Major creek**
- Subsidiary creek**
- Contour line with elevation in feet - 100ft interval**

NOTE: SAMPLE N<sup>o</sup>. WITH PREFIX M8  
e.g. 39 = M8 39

**GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORT**

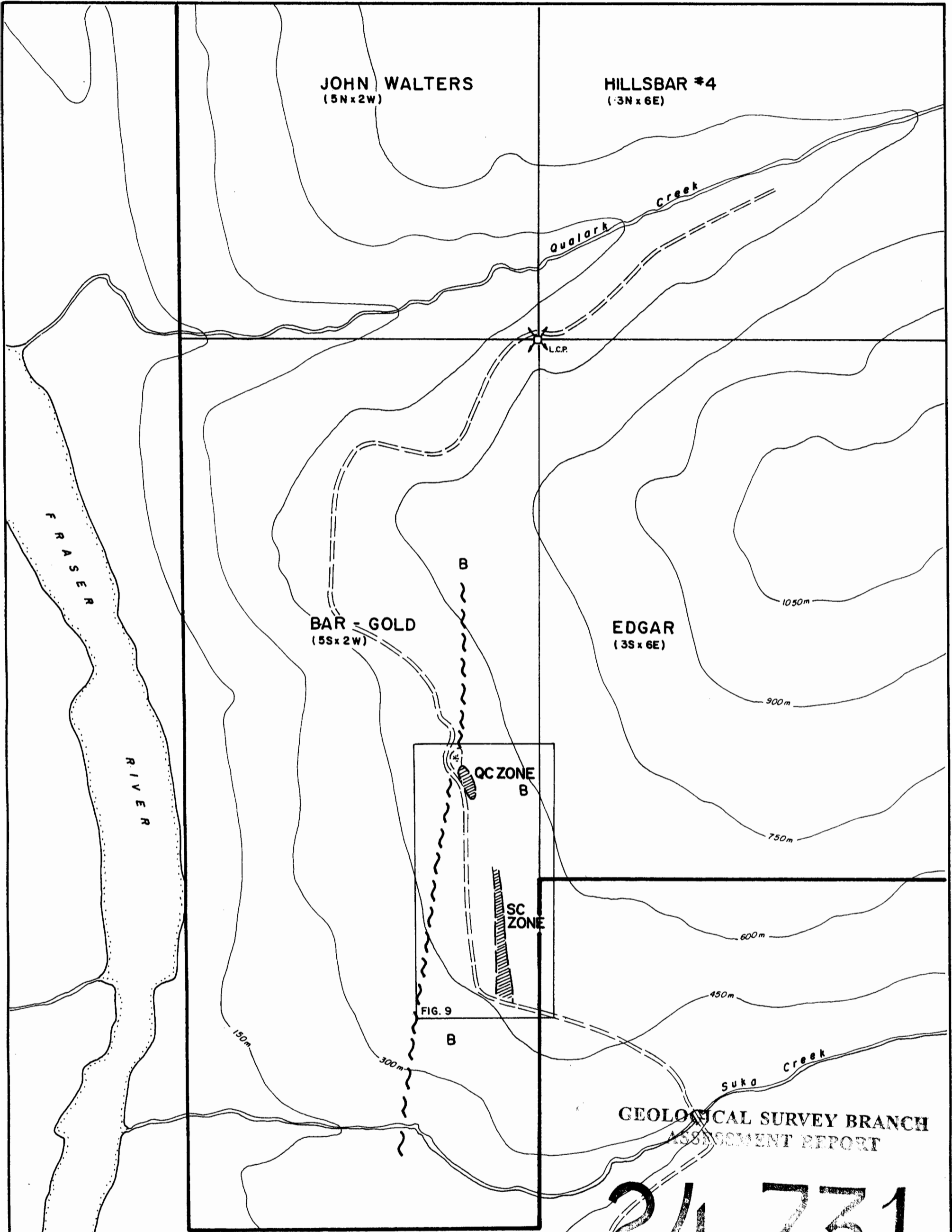
**24731**



MIKE BRADLEY & ASSOCIATES  
 HILLSBAR GOLD INC.  
 HILLSBAR PROPERTY

**PLAN OF GEOLOGICAL SURVEY and GOLD GEOCHEMICAL & ASSAY RESULTS HILLSBAR #4, SOLOMON, FLO-GOLD CLAIMS DETAIL OF SOUTH-EAST GRID AREA**

SCALE 1:1000 NTS 92H/11W  
 DRAWN BY: B.L. DATE: NOV. 1996  
 FIGURE N<sup>o</sup>. 7



GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT

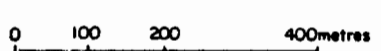
24,731

MIKE BRADLEY & ASSOCIATES

HILLSBAR GOLD INC.  
HILLSBAR PROPERTY

INDEX MAP  
SHOWING LOCATION OF DETAILED MAP  
(FIGURE 9)

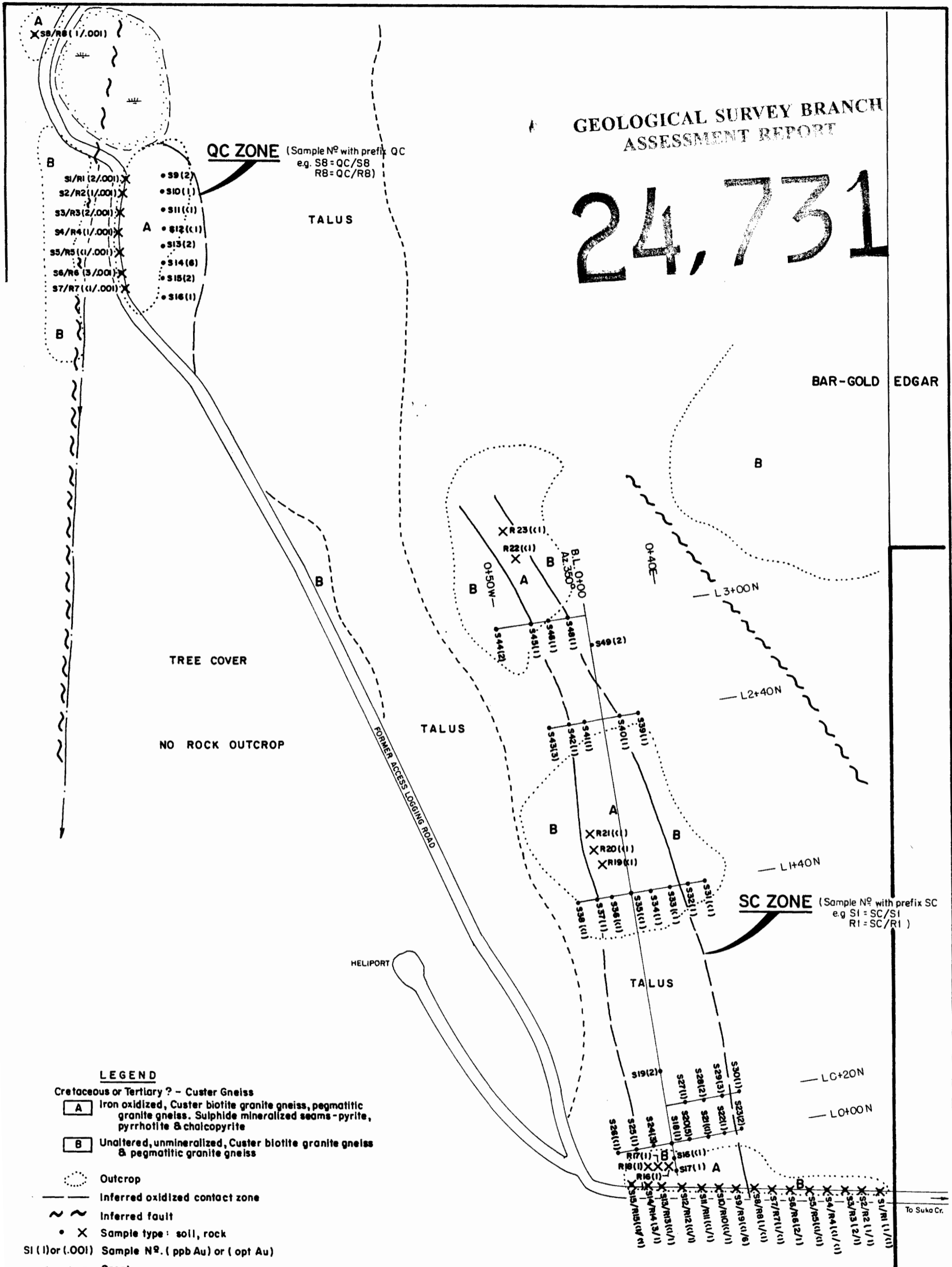
- LEGEND**
- Cretaceous or Tertiary? - Custer Gneiss
  - B Biotite, pegmatitic granite gneiss
  - ~ Inferred fault ( Hope - Fraser Fault System)
  - ▨ Iron oxidized zone
  - Logging road
  - Contour in metres



SCALE 1:10,000	NTS. 92N/11W	FIGURE NO. 8
DRAWN BY: B.L./D.G.C.	DATE: NOV. 1996	

GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT

24,731



**QC ZONE** (Sample N<sup>o</sup> with prefix QC  
e.g. S8 = QC/S8  
R8 = QC/R8)

**SC ZONE** (Sample N<sup>o</sup> with prefix SC  
e.g. S1 = SC/S1  
R1 = SC/R1)

**LEGEND**

- Cretaceous or Tertiary? - Custer Gneiss
- A** Iron oxidized, Custer biotite granite gneiss, pegmatitic granite gneiss. Sulphide mineralized seams - pyrite, pyrrhotite & chalcopyrite
- B** Unaltered, unmineralized, Custer biotite granite gneiss & pegmatitic granite gneiss
- Outcrop
- Inferred oxidized contact zone
- ~ Inferred fault
- X Sample type: soil, rock
- SI (1) or (.001) Sample N<sup>o</sup>. ( ppb Au) or ( opt Au)
- Creek
- Logging road
- S1 Soil sample N<sup>o</sup>.
- R1 Rock sample N<sup>o</sup>.

MIKE BRADLEY & ASSOCIATES  
HILLSBAR GOLD INC.  
HILLSBAR PROPERTY

**BAR-GOLD CLAIM  
DETAIL OF GEOLOGIC MAPPING  
AND GEOCHEMICAL SAMPLING**

SCALE 1:2000	N.T.S. 92H/11W	FIGURE N <sup>o</sup> 9
DRAWN BY: B.L./D.G.C.	DATE: NOV. 1996	

