

1994 SUMMARY REPORT

on the

SPRUCE CLAIMS

(Spruce #1, #2, #3, #4, #5, #6, Spruce #7FR,  
Spruce #8)

Annual Work Approval Number KAM 94-0400366-1696  
Reclamation Permit MX-14-15

TRAIL CREEK MINING DIVISIONS  
British Columbia

North Latitude 49° 11' West Longitude 118° 04'

Map Sheet 082E 01E  
UTM Zone 11

Prepared for

Gold City Resources  
Suite 902  
626 West Pender Street  
Vancouver, British Columbia  
V6B 1V9

Prepared by

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367 Gold Street  
Greenwood, British Columbia  
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November 1994

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**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

23,635

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GOVERNMENT OF  
GRAND FORKS

SPRUCE CLAIMS  
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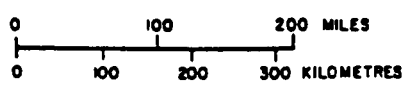
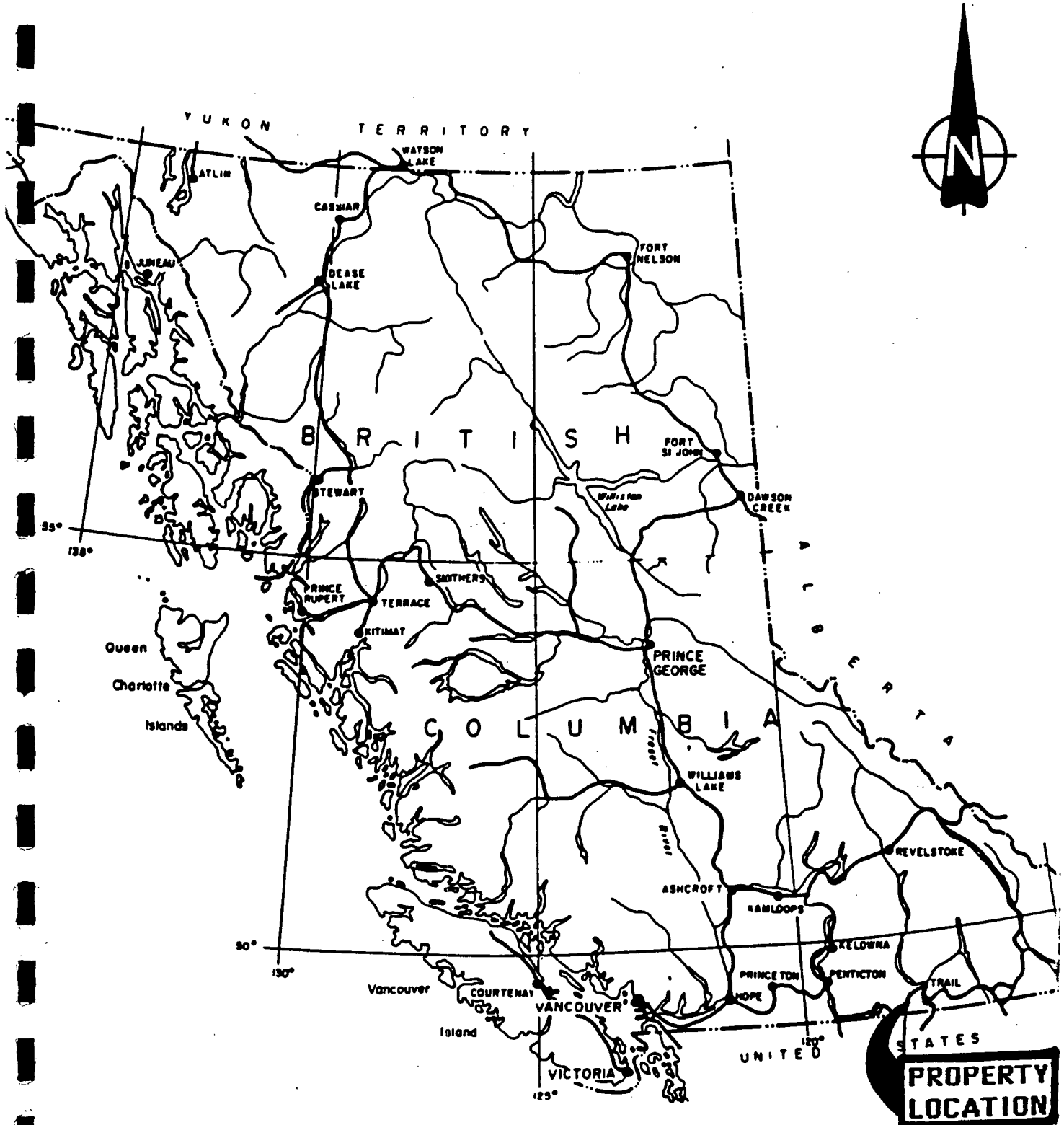
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## 1.0 INTRODUCTION

This report describes the 1994 Spruce Mineral Claim exploration program conducted by R.E. Miller P.O. Box 2941, Grand Forks, British Columbia V0H 1H0, on behalf of Gold City Resources Suite 902, 626 West Pender Street, Vancouver, British Columbia V6B 1V9. Field work was conducted from August 1994 through September 1994, over the Spruce claim block which is located 40 km east of Grand Forks, B.C.. Exploration work consisted of 1.0 km of soil sampling and ground magnetometry along a single line as a southerly extension to the 1992-1993 grid. Additionally, reconnaissance traverses and rock chip sampling were conducted over each of the individual Spruce claims resulting in some wide spaced observations and specifically the location of two old caved adits within the known gold in soil trend.

## 1.1 SUMMARY

Literature search and reconnaissance geology, geochemistry, and ground geophysics in April and May 1991, indicated that geology favorable to the development of bulk tonnage gold drill targets existed in the area around the old Canadian Pacific rail station at Paulson, some 40 km east of Grand Forks, B.C..



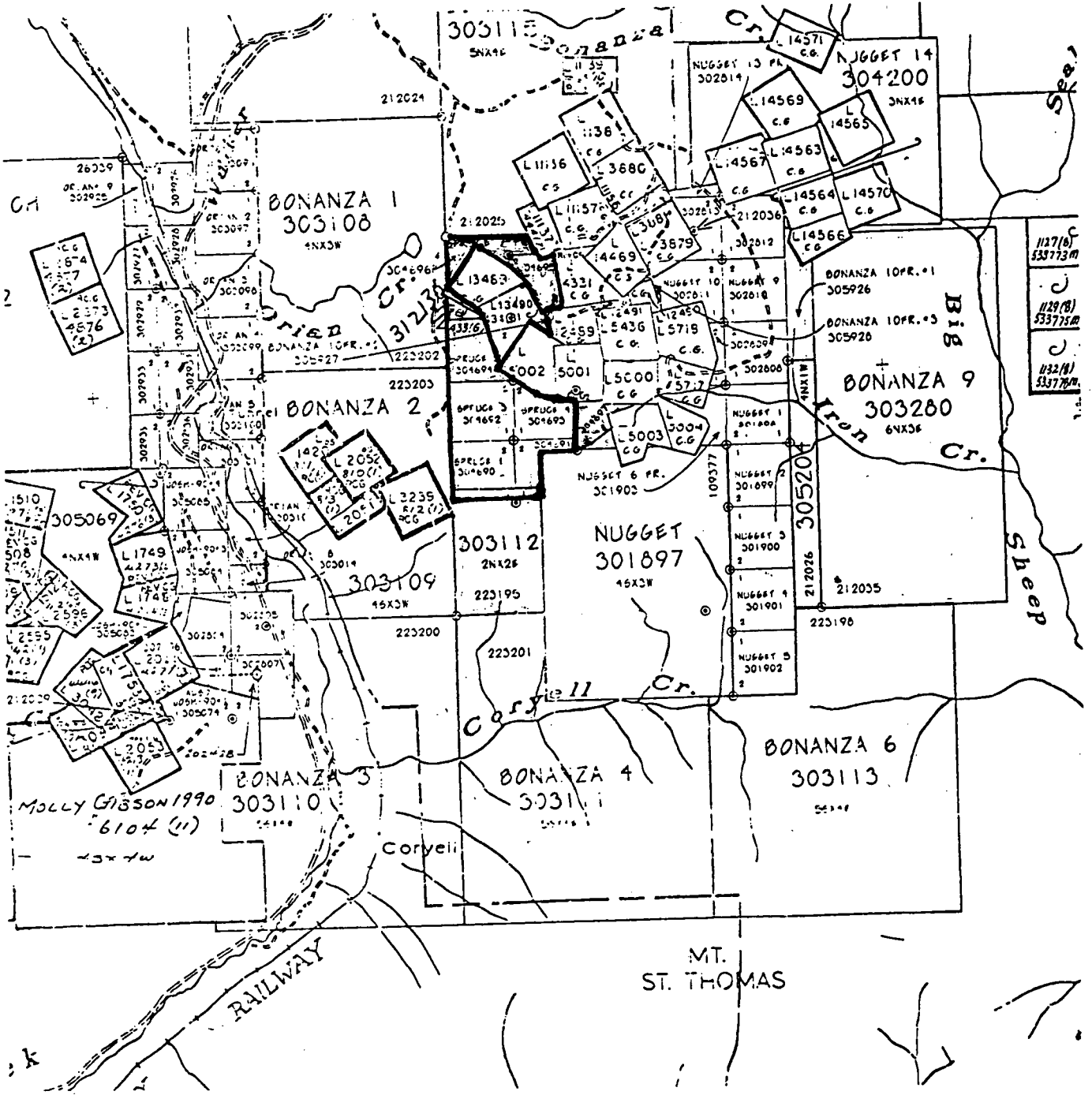
Gold City Resources			
PROPERTY LOCATION MAP			
OSOYOOS MINING DIVISION			
<i>Spruce Group</i>			
DRAWN BY: <i>RM.</i>	NTS:	DATE: <i>NOV 94</i>	FIGURE: <i># 2</i>

Minor high grade gold production west south west of Paulson, has been associated with sulfide and magnetite bearing, siliceous skarnification of select limestone beds. East of Paulson, gold silver ore has been obtained from quartz monzonite hosted quartz veins.

Based on the recommendations in the "1993 SUMMARY REPORT ON THE SPRUCE GROUP, CROWN RESOURCES CORP.", a 1994 extended grid line was implaced on the south end of the main Spruce grid and has returned some interesting anomalous gold values which are associated with a projected intrusive metasediment contact. The 1994 rock chip reconnaissance program conducted over the Spruce claims further indicates that the gold in soils may be related to gold bearing shear zones and quartz veining associated with this structural section.

#### 1.2 PROPERTY AND OWNERSHIP

The Spruce properties are comprised of 8 (eight) two post claims totalling 8 units and are owned by Gold City Resources. The properties are located in the Trail Creek Mining Division of south eastern British Columbia (Figure #1 & #2).



1127(B)  
533773M  
1129(B)  
533775M  
1132(B)  
533776M

Spruce Group  
claim map  
1982

The following table summarizes the pertinent claim data.

#### SPRUCE CLAIMS

UNITS	CLAIM NAME	TENURE NUMBER	EXPIRY DATE*
1	Spruce #1	304690	Sept 28. 1996
1	Spruce #2	304691	"
1	Spruce #3	304692	"
1	Spruce #4	304693	"
1	Spruce #5	304694	"
1	Spruce #6	304695	"
1	Spruce #7 FR	304696	"
1	Spruce #8	304697	"

\*Pending acceptance of this report

#### 1.3 LOCATION. ACCESS AND PHYSIOGRAPHY

The Spruce claim are situated in the Trail Creek Mining Division of Southern British Columbia near Bonanza Pass on Interprovincial Highway #3. 7.0 km east of Paulson, an old Canadian Pacific rail station. Grand Forks is approximately 40 km to the west and Castlegar is about 35 km to the east. Granville Mountain is near the northeast side of the property at Latitude 49° 11' N Longitude 118° 04' W. McRae Creek is near the west boundary of the property and Big Sheep Creek lies to the east.

Access is via the Bonanza Creek road off of Highway #3 some 7.0 km east of the Paulson Bridge. Numerous logging.



mining and bush roads provide excellent access to most of the property.

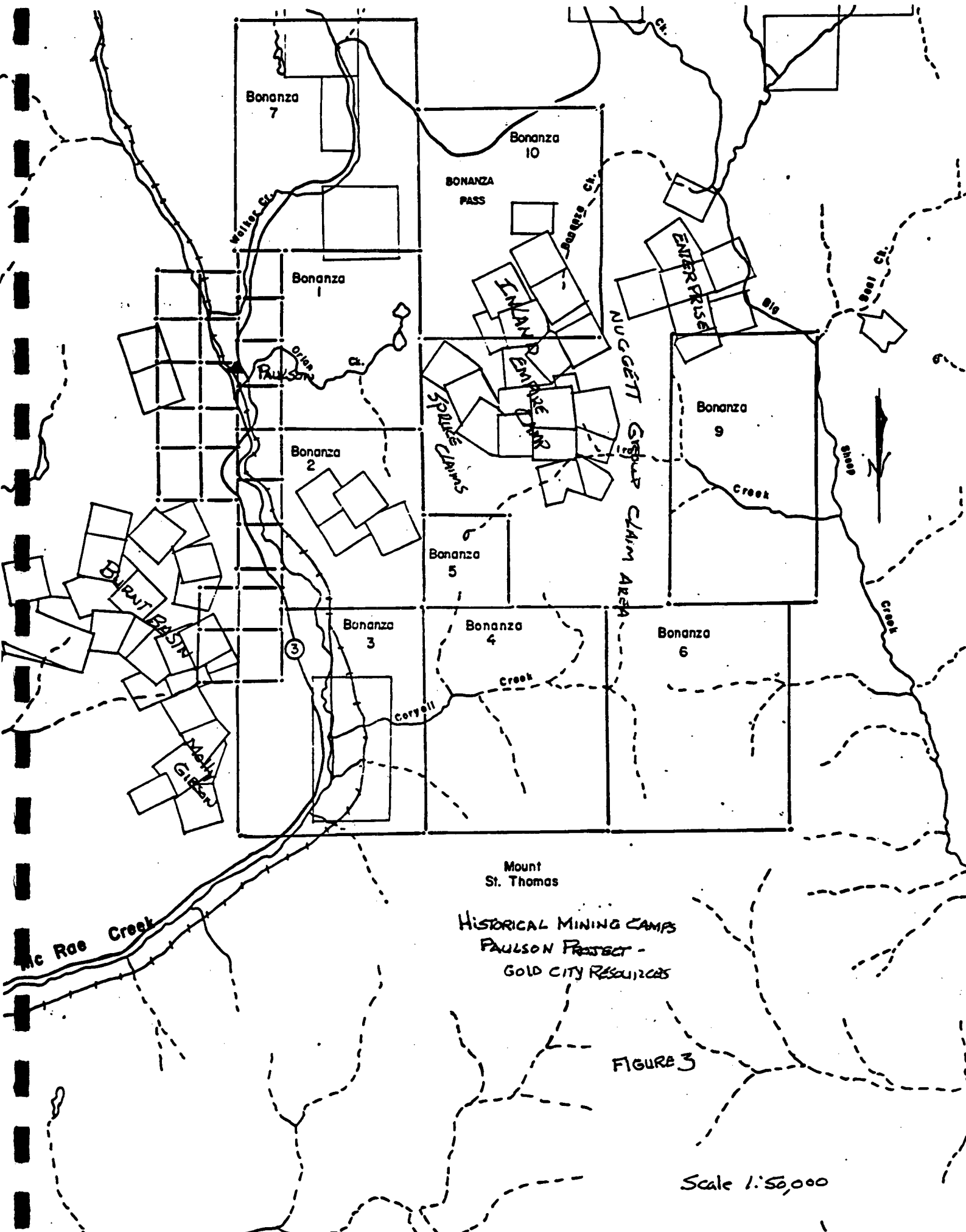
Granville Mountain is the main topographical feature near the property at a height of 1800+ meters (5838 feet). The topographical low point near the property is located south of Paulson by the old railroad stop at Coryell where the elevation is 1025 meters (3177 feet) for an approximate local relief of 675 meters (2160 feet). Mount St. Thomas, just to the south of the property, is some 2100+ meters (6500+ feet) in elevation and is the most prominent point in the immediate area.

Topography varies from gentle rolling hills in the central up-lands, to precipitous cliffs which extend south along Coryell Creek, east along Big Sheep Creek, and to the west along McRae Creek.

Vegetation consists mainly of conifers and scrub bush. Numerous old clear cut logging areas are located within the group.

#### 1.4 HISTORY

Most of the previous mineral work, near or within the Spruce Claims, has been associated with the Burnt Basin and



Mount  
St. Thomas  
HISTORICAL MINING CAMPS  
PAULSON DISTRICT -  
GOLD CITY RESOURCES

FIGURE 3

Scale 1:50,000

Inland Empire mining camps of which Paulson was the jumping off point along the old railroad (Figure #3).

Historical mining efforts in the Burnt Basin Camp started in the late 1890's centering around; lead, zinc, silver, and copper "replacement bodies" in the central portion of the camp along with gold mineralization at the Molly Gibson and Motherlode claims south and northwest of the central base metal showings.

Base metal production in the camp has been sporadic and no production records are readily apparent until 1948 when the Minister of Mines Report states that 14 tons of base metal ores were shipped from the Halifax claim to the smelter at Trail.

Direct shipments to off-site mills of mine run ore, mainly from the Eva Bell and Halifax claims, were made from 1972-1977. Lack of concentration facilities on site to up-grade the mine run ore resulted in marginal economics and production ceased. The following table summarizes the recent base metal data, exploration efforts, and production history at Burnt Basin.

TABLE I

1927	Minister of Mines Report; per ton Silver 10.8 oz; Lead 17.8%; Zinc 20.5%.
1948	Minister of Mines Report: 14 tons shipped: Silver 10.5 oz; Lead 18.1%; Zinc 18.3%. per ton.
1965	Christina Lake Mines - geological, geochemical and magnetometer surveys were completed. Some diamond drilling - data not available.
1968	Dalex Mines - an induced polarization survey, considerable stripping and trenching on Burnt Basin and Ajax claims. Geochemical survey, trenching and stripping and seven drill holes totalling 2,142 feet.
1972-75	Donna Mines, reports by E.O. Chisholm and H.H. Shear, line cutting and magnetometer surveys on the Eva Bell and Halifax, and five short diamond drill holes on the Eva Bell, cat trenching and percussion drilling. Shipped a total of 1,488 tons to Trail, H.B. Mines, Re-Mac Mines and Kam-Kotia.
1975-76	Alvija Mines Ltd - produced 1,750 tons from the Eva Bell claim and shipped 535 tons yielding 3.1 oz. Ag/ton, 4.45% Pb, 6.75% Zn with 21.5% magnetite to the H.B. Mine at Salmo.
1977	Paulson Mines Ltd, completed 1,500 feet of diamond drilling on the Halifax claim and published intercepts of up to 6" grading 12.4 oz. Ag/ton, 19.7% Lead and 14.9% Zinc. (note: Details not available)
1978	Oliver Resources completed a vector Pulse E.M. Survey, I.P. Survey with about 10 km completed. Granges Exploration Ltd, completed 291 m of diamond drilling on the Eva Bell and BP No. 2 (adjoins Eva Bell to the east).
1986-87	West Rim Resources carried out extensive soil geochemical surveys in the Halifax-Eva Bell area.
1989-93	Crownex Resources Ltd, conducted gold exploration surveys over the Paulson area covering the old mining camps of Burnt Basin and Inland Empire, and

one of the surveys was successful in outlining anomalous gold values on the Spruce Claims.

The following Table II summarizes gold exploration and production history associated with the Molly Gibson and Mother Lode claims at Burnt Basin.

TABLE II

1909 - 1933	Shafts, tunnels and trenches on the Molly Gibson Group produced 260 tons containing 285 oz. gold and 119 oz. silver.
1909 - 1936	Molly Gibson Group an up-dated production total of 316 tons yielding 332 oz. gold.
1986 - 1987	West Rim Resources completed 420 meters of diamond drilling at the Motherlode prospect.
1988	John Worthing - Salt Lake City, Utah drilled at least 4 core holes on the Molly Gibson. (data unavailable)
1991	Orvana completed small geochemical grid on Molly Gibson.

Other gold claims in the Burnt Basin camp include the Kittie, Aldeen, Contact, Tammany and Tunnel group.

Historically, production in the Inland Empire camp, east of Paulson near Granville Mountain has been from small scale

shafts, tunnels and open cuts which have produced limited tonnages of gold and silver ore. The following table lists some of the more pertinent data by claim.

TABLE III

INLAND EMPIRE GROUP:  
Albion Claim

1950	shipped 25 tons containing 8 oz. gold and 38 oz. silver.
1962	shipped 152 tons containing 16 oz. gold, 147 oz. silver, 309 lbs. lead, and 309 lbs. zinc.
1964	shipped 25 tons containing 70 oz. gold, 23 oz. silver, 50 lbs. lead, and 50 lbs. zinc.

Alice L./Berlin Claims

1917	59 tons valued @ \$90-100 in gold and silver.
1918	142 tons assaying 3.0 oz/ton gold, 15.0 oz/ton silver, and 0.6% copper.
1919	65 tons containing 26 oz. gold, 83 oz. of silver and 117 lbs. copper.
1938	541 tons shipped containing 121 oz. gold, 1,142 oz. silver.
1939	467 tons yielding 80 oz. of gold and 145 oz. silver.

Inland (Inland Empire) Claim

1912	2.200 tons milled. 43 tons shipped.
------	-------------------------------------

Minor production has been reported from the Cascade - Bonanza and Nugget claims on the south east side of the camp; and in addition, the Enterprise group to the north east of Inland Empire also has recorded shipments, probably totalling less than 50 tons.

Recent efforts in the Spruce Claim area had centered around gold bearing quartz veins until Prominent Resources Corp's more comprehensive exploration in 1985 which focused on the viability of bulk gold targets adjacent to the traditional camp, as well as trying to evaluate the quartz vein targets within the intrusive.

## 2.0 GEOLOGY

### 2.1 REGIONAL GEOLOGY

Carboniferous or older rocks, possibly equivalent in part to the Pennsylvanian-Permian Mt. Roberts Formation and Lower Jurassic Elise Formation of the Rosslund Group, have been intruded by Late Jurassic Early Cretaceous Nelson and Middle Eocene Coryell plutonic rocks (Figure #4a & 4b).

Mt. Roberts Formation rocks form an elongate east west roof pendant in the central part of the project area. The pendant consists mainly of limestone, argillaceous limestone, chert, slate, pebble conglomerate and andesitic



SPRUCE CLAIM  
GROUP  
AREA  
Fig 4a

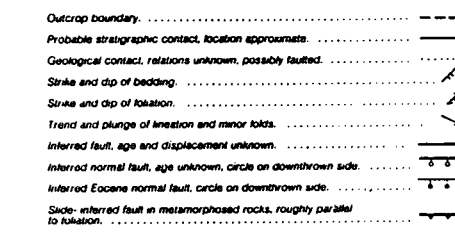
CPas CPad



LEGEND

QUATERNARY	QPI	LAMBLY CREEK BASALT rusty weathering diaca basalt, with numerous diaca and pyroxene phenocrysts to 5 mm in an aphanitic matrix. Occurs as columnar jointed flows, a few metres thick. Mesozoic sheet. K-Ar age of 0.762 Ma determined by Church 1981
	Eocene	
TERTIARY	MIocene	PLATEAU BASALT andesite and basalt with augite and hornblende phenocrysts to 5 mm in a diaca aphanitic matrix. Forms massive flows to 20 m thick. Locally underlain by poorly sorted boulder conglomerate and diaca sandstone. K-Ar cooling ages of 2.0 and 14.9 Ma. Includes Devils Creek Basalt (14.9 Ma) and Carrot Mountain alkali basalt (11.8 Ma)
	EOcene	
MESOZOIC	Egr	QUALLA RHYOLITE rhyolite breccia, massive obsidian and related dikes
	Ema	MARION GROUP unfractured andesite, diaca and trachyte of the Marion Group; may include minor apfelsic rocks equivalent to Est and Eab
	Es	SAHNA FORMATION brecciated greenstone (Old Tom Formation), fractured chert (Shoemaker Formation, Est), and brecciated granite (Lower Granite, Est) resting as fault blocks on the west side of the White Lake Formation on partly dipping faults; includes unfractured polydeformed fanglomerate and andesite resting unconformably on these brecciated rocks. Near Rock Creek includes heterogeneous apfelsic breccia (Klonka Mountain Resting)
	Ewl	WHITE LAKE FORMATION massive to thick bedded volcanic breccia and pyroclastic rocks and dikes of Trapane, Rhyolite and Kiley Lake and Yellow Lake formations. Includes interbedded medium and fine beds of tuffaceous sandstone and clayey siltstone, minor carbonaceous seams. Includes minor trachyte and andesite. Petrographs from Powers Creek indicate a Middle Eocene or Older age
	Em	MARAMA FORMATION medium brownish grey, fine bedded diaca with subhedral calcite, hornblende and biotite phenocrysts to 5 mm in an aphanitic matrix. Forms the top of Black Knight Mountain. Mount Bouchere, Ameslee Butte, Mount Lee
	En	MARAMA FORMATION-NIMITZ LAKE MEMBER recessive, reddish weathering, amygdaloidal, trachyandesite with minor interbedded pyroclastic deposits. Includes unfractured intrusive equivalents
	Ek	RITLEY LAKE FORMATION massive, yellowish to buff, trachyte to trachyandesite, pagodite and diaca (glomerulophenocrysts to 3 cm, 10% of the rock) in a fine crystalline groundmass. Includes ash flow tuff and minor mudstone. Includes unfractured intrusive equivalents. Church determined K-Ar ages between 52.9 (diaca) and 44.2 Ma (whole-rock)
	Eyl	YELLOW LAKE FORMATION massive to thick bedded flows of buff to light tan trachyandesite, andesite and biotite phenocrysts to 5 mm in an aphanitic matrix. Includes primary andesite, abundant zeolite, cracks and amygdaloids. Includes unfractured intrusive equivalents
	Etr	TREPANE RHYOLITE white and locally pink, greenish or light grey, fine bedded rhyolite with subhedral quartz, hornblende and biotite phenocrysts to 3 mm in an aphanitic matrix. K-Ar ages of 47.7 and 46.2 Ma were determined by Church (1981) west of Trepane
	Eab	SPRINGBROOK FORMATION poorly sorted, massive to thick bedded, immature, coarse boulder and pebble conglomerate. Clasts to 30 cm are abundant, but of low sphericity and are locally derived (chert, greenish granite, and other pre-Eocene rocks with lower Marion Group dikes, many Yellow Lake and Kiley formations). Near Rock Creek the unit consists of fine to light grey, medium bedded, trachyandesite, siltstone and shale with coaly partings, named the Astle River Formation
Ec	CORTELL SYENITE aenac to calc-alkalic, high level pink and buff syenite and quartz monzonite and trachyte pink feldspar porphyry dykes. Intrusive equivalent of the Marion Group especially the Ritley Lake Formation. Gradational to pelusite and to Shingle Creek Porphyry. Intrusives includes JKG unfractured in East part of map area poorly dated	
Egp	SHINGLE CREEK PORPHYRY massive, buff and pink, fine grained porphyritic granite and felsite with subhedral phenocrysts of K-feldspar to 10 cm across. Occurs as dikes under, and heaves to, the volcanic rocks of the Marion Group, especially the Ritley Lake Formation. A younger level equivalent of the Cortell Syenite. Includes mono porphyries and related rocks	
Egn	"CHANGANAN GNEISS" massive, medium grey weathering, resistant hornblende-schist granulite orthogneiss, strongly foliated. Grades to felsic gneiss, migmatite and blastomylonite. Minor amphibole and garnets. Minor schist, minor pegmatite and apatite. Strongly controlled along Changanan Fault. Grades eastward (and up the structural succession) to JKG, JAG and Pm units of which it is presumed as the sheared equivalent. Probably also includes sheared equivalents of the Anarchois Group. Presumed sheared and thermally unroofed during the Eocene. Egn1: quartz-chlorite microbreccia and related altered rocks close to the Changanan Fault	
Egno	Massive, light grey weathering, biotite granite gneiss and granulite gneiss with pegmatite veins and sets	
Eg	Hornblende granulite massive, resistant, grey weathering, coarse grained, equigranular mesocrystic with euhedral fresh black hornblende crystals. Locally weakly foliated. Age poorly constrained	
CHETACEOUS AND OR JURASSIC	JKg	CHANGANAN BATHOLITE massive, light grey weathering, medium to coarse-grained, equigranular to porphyritic, unfoliated to weakly foliated, fresh biotite granulite and granite. Includes unfractured granulites of the Huron suite. Age poorly constrained
	Jo	OLIVER PLUTON massive, unfoliated, medium grained porphyritic biotite granite with weakly foliated, equigranular hornblende granulite along the southern border. Includes JAG, biotite-hornblende diorite apatite and JAG, massive garnet-muscovite granite, age poorly constrained
MESOZOIC	JKg	OSORODS GRANODIORITE recessive, pesty greenish hornblende granulite pervasively saussuritized, chloritized, sheared and fractured. Age unknown
	JKg	MIDDLE JURASSIC NELSON PLUTONIC ROCKS massive, generally moderately foliated, medium grey weathering, medium to coarse-grained, equigranular, hornblende-biotite granulite, quartz diorite and granite. Includes unfractured biotite granite of the Vanasse suite. Age poorly constrained
	JKg	QUALLA PYROXENITE black, fresh, massive, medium to coarse-grained pyroxenite hornblende, serpentinite and peridotite
JKg	KRUGER SYENITE massive, medium grained, biotite hornblende granulite with a marginal zone of megacrystic, mesocrystic coarse grained hornblende syenite	

MESOZOIC	uTtv	UPPER TRIASSIC AND/OR LOWER JURASSIC ROSSLAND AND NICOLA GROUPS Massive greenstone, andesite, tuffs, agglomerate and volcanic breccia of greenstone fragments locally with limestone clasts. Minor greywacke minor interbedded limestone. Includes lenses of schistified equivalent. May include unfractured Lower Jurassic volcanics of similar lithology
	uTms	Rusty weathering, black pyritic slate, siltstone and argillite, locally schistified or "cherty"; minor quartzite, minor interbedded argillaceous limestone. Includes unfractured greenstone lenses
PALEOZOIC TO MESOZOIC	uTrot	ORDOVICIAN TO UPPER TRIASSIC OLD TOM FORMATION: massive andesitic greenstone and greenstone breccia. Locally includes large, extensive, strongly schistified equivalents in irregular bodies and lenses with gradational boundaries, which are unfractured; includes a few small lenses of unfractured limestone; minor diorite, and is poorly understood known to contain Ordovician, Carboniferous and Triassic fossils. Unfractured related to Shoemaker Formation and gradational
	uTfs	SHOEMAKER FORMATION: massive, greenish green schistified volcanic rocks, including "cherty" tuff and breccia. Includes unfractured massive greenstone. May include chert. Generally fractured and broken by irregular spaced cleavage. May be largely the schistified equivalent of the Old Tom Formation
	uTfs	INDEPENDENCE FORMATION: massive greenstone, volcanic breccia with greenstone fragments. Includes large unfractured schistified limestone. Includes lenses of unfractured limestone related to the Old Tom and Shoemaker formations
MESOZOIC	Trbs	MIDDLE AND LOWER TRIASSIC (?) BROOKLYN LIMESTONE AND "SHARPSTONE CONGLOMERATE" white weathering, thick bedded, light grey limestone commonly with rounded to angular chert "chert" grains. Minor greenish siltstone and massive resistant, breccia with angular, roughly equant, clasts to 10 cm in rocks of "chert" and greenstone and locally limestone in a matrix of calcareous sand and grit of the same material. Grades to "chert" siltstone and "chert" grit by decrease in grain size. Minor green and black siltstone, partly a fine grained buff, grains and matrix strongly schistified. "Chert" and andesitic greenstone fragments derived mainly from the Knobs Hill Group. Includes mostly from the Brooklyn Formation and locally from the Atwood Group. Limestone contains Middle Triassic fossils
	CPk	CARBONIFEROUS OR PERMIAN KNOBS HILL GROUP: massive "chert" (largely schistified greenstone, greenstone and amphibole). Minor limestone or marble. Minor sharpstone. Age unknown
PALEOZOIC	CPat	ATTWOOD GROUP: light grey limestone with minor interbedded chert. Contains Carboniferous fossils
	Cbc	CARBONIFEROUS BLIND CREEK FORMATION: medium bedded grey limestone and calcareous argillite. Lacks penetrative fabrics, low greenish facies. Metamorphism
	Cb	BARLOW FORMATION: fine bedded, brown, silty slate and argillaceous siltstone. Lacks penetrative fabrics, low greenish facies. Metamorphism
	CPa	CARBONIFEROUS OR OLDER ANARCHOIS GROUP: dark grey weathering, recessive, argillaceous greenstone, quartz-chlorite schist, quartz diorite schist, minor unfractured peridotite. "Chert" breccia that resembles this. Locally includes: CPa: pelusite and serpanized equivalents. CPa: amphiboles. Age unknown
	CPko	KOBAU GROUP: unfractured amphibole, granofelsic quartzite, mica schist, greenstone, minor marble. Strongly foliated with penetrative fissile fabrics. Age unknown
	ODa	ORDOVICIAN (?) TO DEVONIAN (?) SCHIST: fine bedded argillaceous limestone, slate and limestone. Includes metamorphosed equivalents mostly biotite-quartz schist and marble. Age unknown
	Pgfm	PROTEROZOIC (?) AND PALEOZOIC (?) GRAND FORKS GNEISS Mylonic biotite leucogranulite. Proto unit X
	Pglo	Medium crystalline, well foliated biotite hornblende granulite orthogneiss. Proto unit II
	Pgfa	Amphibole, amphibolite gneiss, minor marble. Proto unit IV
	Pgfo	Coarsely crystalline garnet-biotite schist, interfoliated quartzite, minor marble, abundant pegmatite and leucogneiss. Proto unit II
Pgfo	Coarsely crystalline, thick layered quartzite, minor marble and pegmatite. Proto unit II	
Pgfo	Siltstone-biotite-quartz paragneiss, amphibolite and amphibolite gneiss, marble, biotite schist and gneiss, garnet-biotite-quartz schist. Metaceous quartzite. Includes minor leucogneiss. Proto unit I	
Pm	MONASHEE GNEISS grey, massive, biotite granulite gneiss, granulite weathered with Egn, but not overprinted by the Eocene event that affected the rocks near the Changanan Fault. May be equivalent to related to Pgi. May include equivalents of ODa. Age unknown	



volcanics. Rocks within the pendant strike roughly north east 320 to 340 dipping 40 to 85 east and are cross cut by north trending shear zones.

Limestone and argillites are generally light gray to black in color and relatively unaltered except where skarned.

Volcanic rocks are typically dark green and "intrusive dykes and sills" are typically light colored.

Rocks equivalent? to the Rossland Group, consisting of flow breccias, volcanic breccias, andesites, basalts,

agglomerates, tuffs, black laminated siltstones, and augite porphyry, outcrop throughout the property.

Biotite hornblende/granodiorite of the Late Jurassic - Early Cretaceous Nelson intrusives, cut both the Rossland Group and the Mt. Roberts Formation.

Nelson intrusive rocks have been subsequently intruded by Middle Eocene Coryell, coarse grained syenite, and quartz monzonite. Granites and monzonites of Coryell age are also common along with numerous hypabyssal prophyritic phases.

## 2.2 ECONOMIC GEOLOGY

Gold bearing fissure quartz veins have been found on the Burnt Basin side at the Motherlode, Kittie, Aldeen, Tammany

WOODS

Bonanza 7

Ec

Bonanza

BONANZA PASS

ENTERPRISE

ODS

Ec

m/jg

INLAND EMPIRE

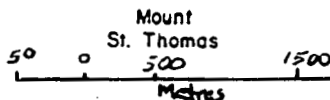
ODS

NUCKETT

BURNT BASIN

ODS

Ec



PROPERTY GEOLOGY - PAULSON  
\* SPRUCE CLAIMS

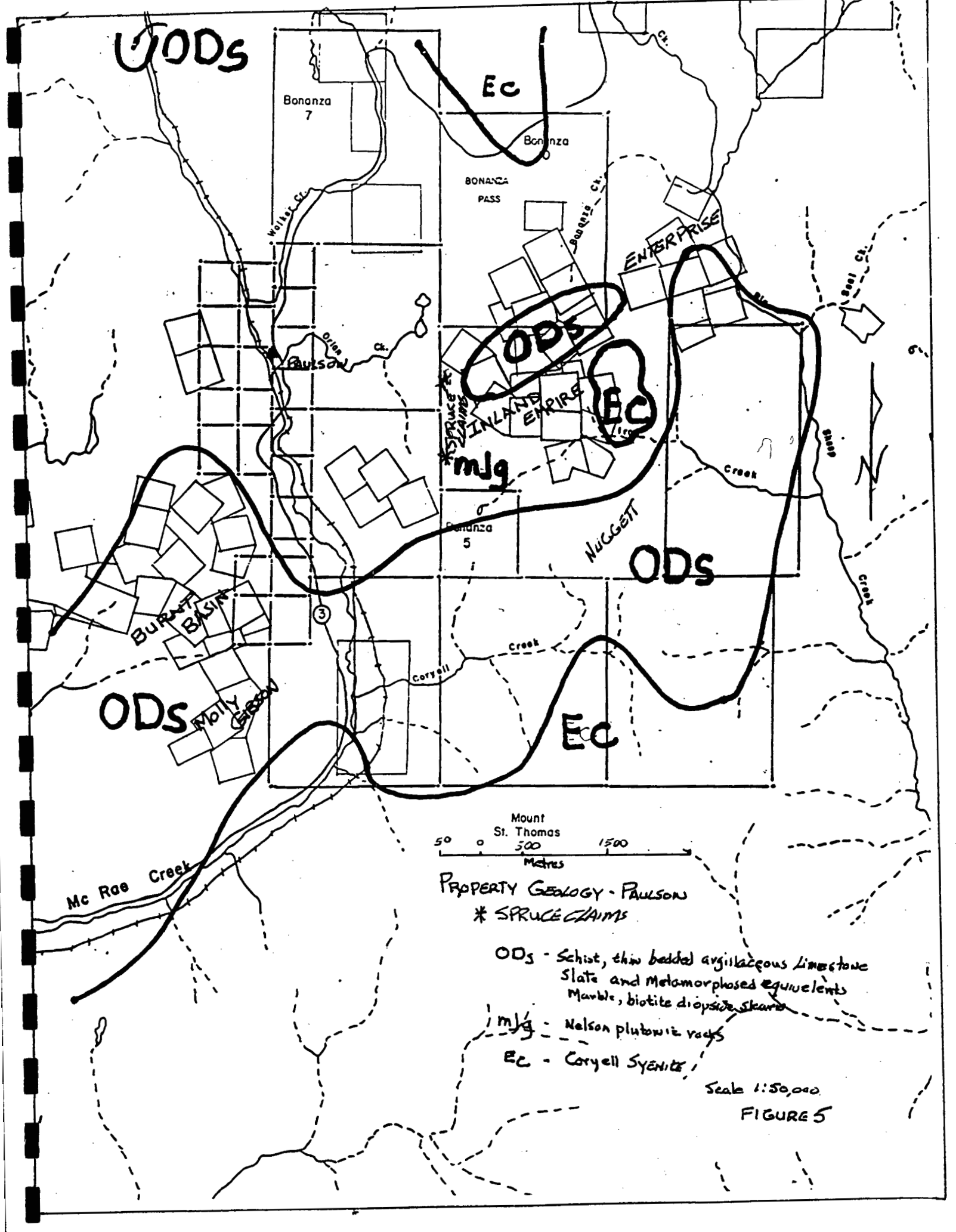
ODS - Schist, thin bedded argillaceous limestone  
Slate and Metamorphosed equivalents  
Marble, biotite diopside skarn

m/jg - Nelson plutonic rocks

Ec - Coryell Syenite

Scale 1:50,000

FIGURE 5



and Tunnel group claims. Reported gold values have ranged from a trace to 22 grams per ton.

Most of the Burnt Basin (Figure #5) gold production has come from sulfide rich calc-silicate skarn bodies in a siliceous limestone unit at the Molly Gibson group claims. Sulfides include pyrrhotite, pyrite and chalcopyrite. Magnetite is also present in the skarn aureole, but is usually a minor constituent except in the base metal "replacement" ore bodies where it forms bands of massive magnetite up to 2.0 meters thick.

East of Paulson, the gold mineralization at the Inland Empire camp is related to north trending quartz veins cutting quartz monzonite and related intrusive bodies. These veins are usually: polymetallic, striking within 10 degrees of north, dipping steeply, faulted, and discontinuous along strike.

Alteration halos associated with the veins tend to be narrow and either propylitic or argillic. Some quartz veins exhibit epithermal banding and mineralogy while others appear to have mesothermal characteristics. Sulfide pods, disseminations, and disseminations within the quartz veins or at the vein wall rock contact, consist of all or

one of the following: pyrite, arsenopyrite, chalcopyrite galena, pyrrhotite, and sphalerite. Magnetite bearing quartz veins have been found within the Rossland? volcanics on the Spruce claims.

Skarn hosted mineralization that occurs along the south end of the limestone belt and within the Enterprise claim group to the north east, is predominantly base metal enriched. However, selective sampling of the skarn can produce economic gold assays. Skarnification evidenced in the limestone of the Mt. Roberts Formation and Rossland volcanic units, appears to be intensely telescoped. It is common to go from coarse marble to garnetite within a few meters along strike of the limey beds and from calcite epidote skarn to garnet magnetite skarn in less than one meter within the highly fractured volcanics.

### 3.0 EXPLORATION 1994

Following the 1993 recommendations found in the Crownex assessment report of that year, along with the need to locate gold enriched surface rocks as a tool to aid in the evaluation of the known gold in soil trend on the Spruce claims, a one kilometer soil and ground magnetometry line was completed on the south end of the Spruce grid. In addition reconnaissance traverse accompanied by rock chip

sampling was conducted on each of the Spruce claims. The additional grid line 47600N lies within the Bonanza 5 claim but the results are directly applicable to the interpretation of the gold in soil anomaly on the Spruce claims property to the north.

### 3.1 GEOCHEMISTRY

Line 47600N, from 21300E to 22330E on the south end of the Spruce grid, was put in place and soil sampled every 25 meters. A total of 42 soil samples were collected and shipped to Chemex Laboratories Vancouver where the -80 mesh fraction was analyzed for geochemical gold. A plot of the geochemical data shows that the anomalous (>15ppb) gold values are shifted to the east, relative to the general north south trend of the earlier soil survey that crossed the Spruce claims (Figure #6).

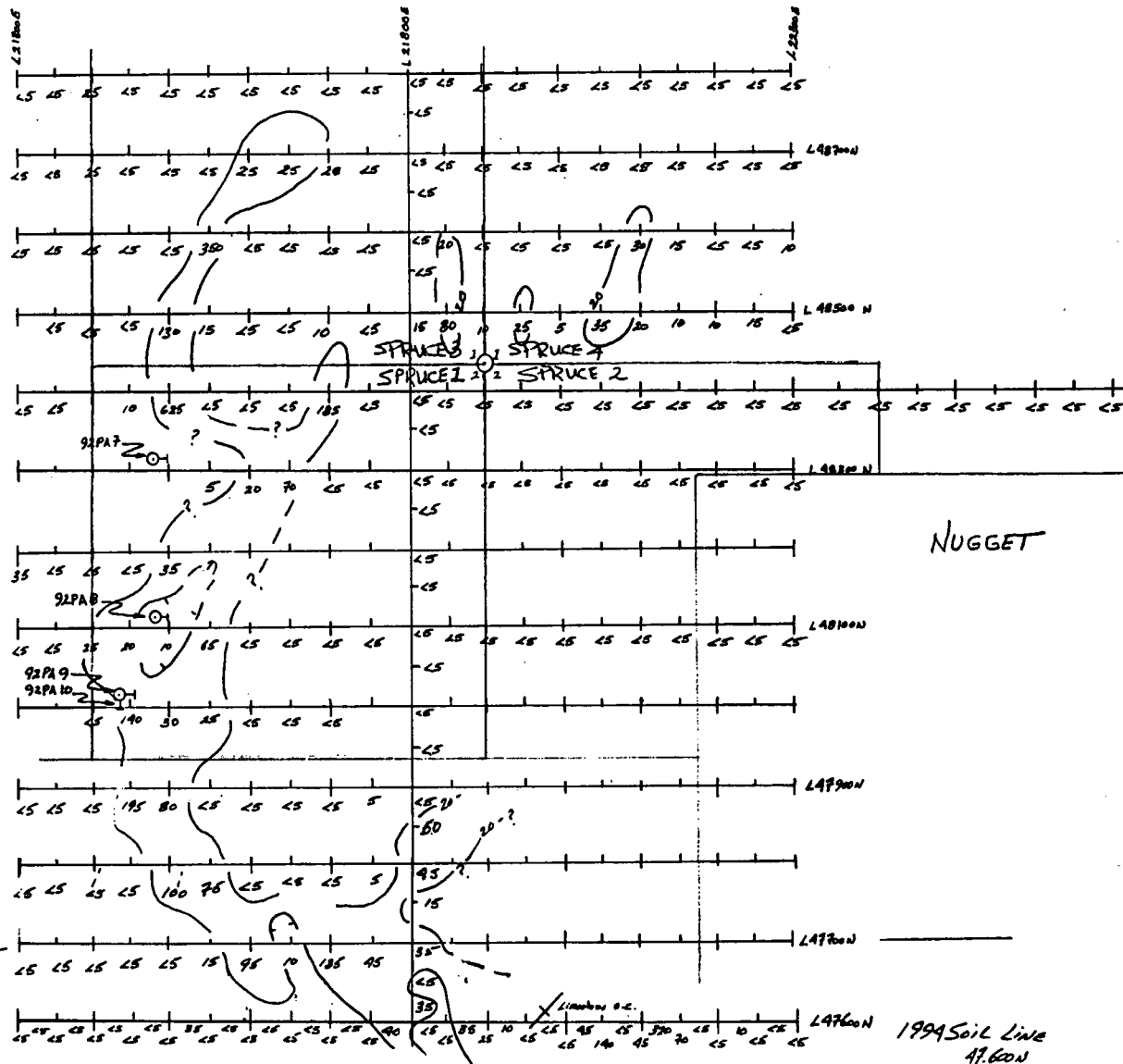
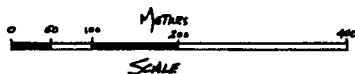
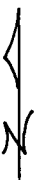
The apparent shift is most likely due to a number of factors one of which is topography. The topography appears to have changed from a west facing slope in the central part of the Spruce claims to a south facing slope on the Bonanza 5 claim at the south end of the Spruce grid. Secondly, two different geologic conditions may be a part of this apparent shift. The first condition could be that the postulated north south structure has intersected the

# REDUCED SCALE - FULL SCALE IN POCKET

REVISIONS	BY
10/1/94	RM

### LEGEND

- Grid line gctb. gold in ppb. 150
- gold Value Contour 20
- drill hole collar w/ direction of hole Number 92PA7
- Claim line of Corner



PAULSON PROJECT - SPRUCE GROUP - TRAIL CREEK MINING DISTRICT B.C.  
 -80 NEW GOLD IN SOIL GEOCHEM ASSAYS IN PIP.  
 1992 REVERSE CIRCULATION DRILL HOLE COLLARS AND NUMBERS.

FIG #6

Date	
Scale	1:400
Drawn	RM
Job	Paulson Spruce
Sheet	1
Of	1 Sheets

east northeast trending metasediment intrusive contact at the southerly point of the Spruce grid. The second geologic condition that could be a factor in the shift, is the projected east dip of the complex north south structural zone related to the gold in soil anomaly zone.

Reconnaissance traverses conducted over each of the Spruce claims to obtain rock chip samples, resulted in the collection of eighteen samples (Figure #7). These rock chip samples were sent to Chemex Laboratory in Vancouver, B.C. and analyzed for geochem gold.

TABLE 1V  
SPRUCE ROCK CHIPS - 1994

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DESCRIPTION	GOLD ppb
94BZ 100R	grab	Altered Andesite	<5
94BZ 101R	grab	Andesite, Qtz veinlets PO, Mag, and Py.	<5
94BZ 102R	grab	Same as above with Epidote	<5
94BZ 103R	grab	Syenite dyke with Pyrite(?)	<5
94BZ 104R	grab	Diorite with Pyrite and PO(?)	<5
94BZ 105R	grab	Altered Andesite with PO(?)	<5



GOLD CITY RESOURCES

SAMPLE GRID

MAP # 821E

TRAIL CROSS

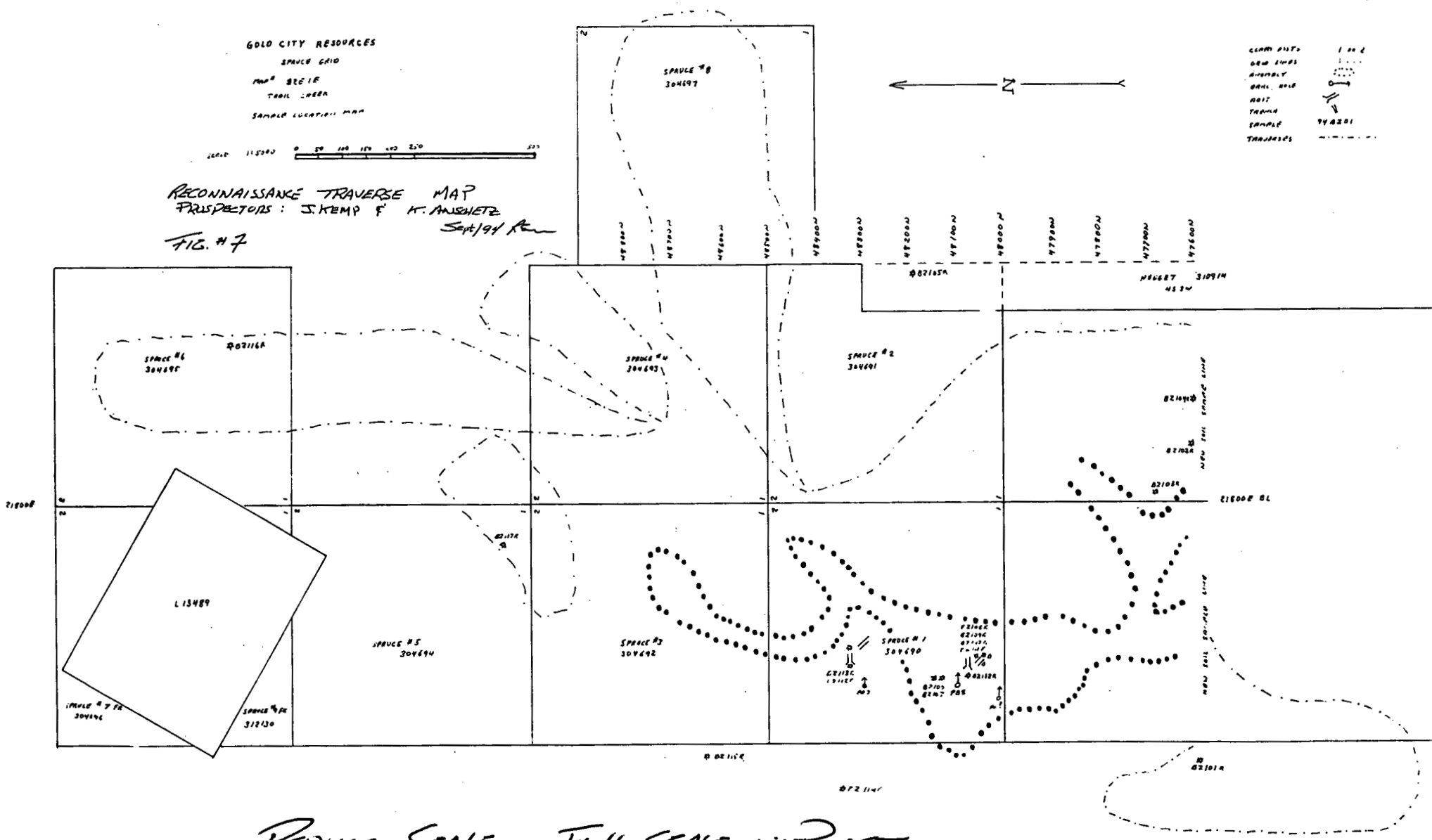
SAMPLE LOCATION MAP

SCALE 1:5000 0 50 100 150 200 250 300

RECONNAISSANCE TRAVERSE MAP  
FRISDETONS: J. KEMP & K. ANSHETZ

Sept 194 Run

FIG. # 7



REDUCED SCALE - FULL SCALE IN POCKET

94BZ 106R	grab	Altered Andesite with Py and PO(?)	<5
94BZ 107R	float	Quartz vein with Cuox, PbS and Py	15
94BZ 108R	grab	Oxidized quartz vein with Py and PbS	60
94BZ 109R	grab	Quartz vein in Altered Andesite	115
94BZ 110R	grab	Hornfels with Pyrite	<5
94BZ 111R	grab	Andesite with Py & PO(?)	<5
94BZ 112R	dump	Sheared Andesite with Py, PO, and Cuox	180
94BZ 113R	grab	Diorite with Py & PO(?)	<5
94BZ 114R	grab	Metasediment? with Py and PO	<5
94BZ 115R	grab	Hornfels contact with Syenite	25
94BZ 116R	grab	Shear in diorite	30
94BZ 117R	grab	Andesite with Py & PO	55

These anomalous gold assays, although of low level, suggest that the best results are related to quartz veining and shear zones in volcanics. The results then could indicate that the anomalous north south band of gold in soil values that cut through the Spruce claims and Bonanza 5 claim are related to a complex shear zone that hosts pods, veins and veinlets of quartz.

### 3.2 GEOPHYSICS

Ground magnetometry readings were taken at each of the 25 meter soil stations on line 47600N and the raw data is plotted in profile as Figure #8. The most interesting observation is that the highest gold in soil value on line 47600N is at station 22125E and is associated with an elevated magnetic response that starts between 22175E and 22200E. Responses of the type found on the east end of line 47600N near this high gold value, are usually indicative of intrusive bodies on this property.

### 4.0 CONCLUSION

Over one kilometer on strike and open to the south, the sinuous gold in soil anomaly appears to be related to a series of geologic parameters. On the surface, within the gold trend, mineralized quartz veining was noted along with north trending magnetite bearing intrusive rocks and shears.

Near the extreme south end of the gold anomaly, a more complicated geochemical pattern is starting to emerge and may be due to: the intersection of two mineralized trends, the intersection of the main mineralizing trend with the easterly trending metasediment roof pendant or the

28

# GOLD CITY RESOURCES LTD.

## SPRUCE CLAIMS - MAGNETIC PROFILE

### LINE 47600 N LOOKING NORTH

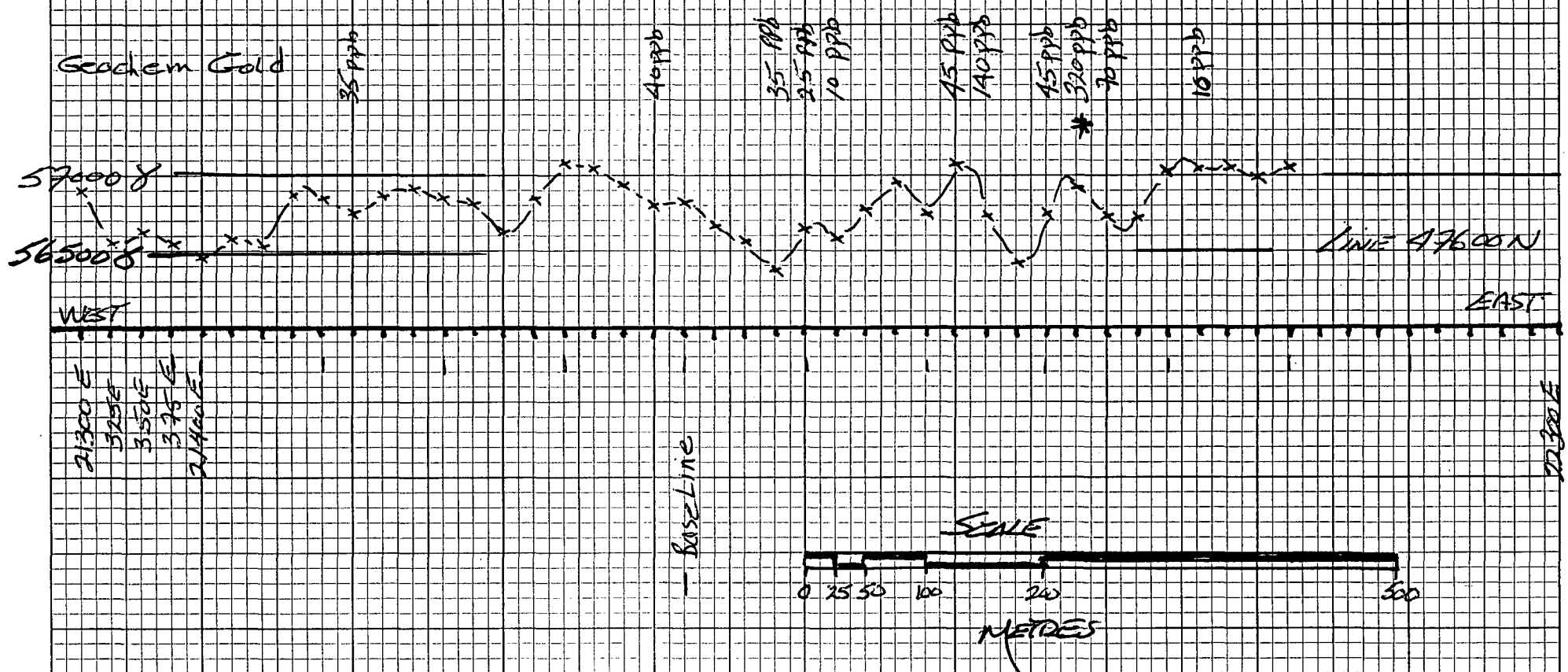


FIG. 8

SEP 1/94  
Rum

dispersion of gold in soil values down a south facing slope which in turn could suggest an easterly dip to the main gold zone.

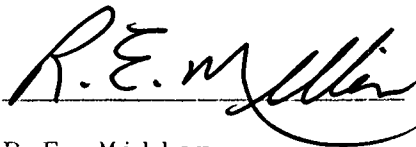
The data gathered in 1994, indicates that the gold in soil anomaly, striking north south through the Spruce claims and Bonanza 5 claim is related to a complex structural zone that hosts pods of quartz, quartz veins and quartz veinlets. This postulated shear zone could be as wide as 50 meters and have a strike length extent of 1.1 kilometers with the possibility of mineralization localized along east west cross cutting structures, near or along lines 48400N, 48100N, and 47600N.

#### 5.0 RECOMMENDATIONS

Re-open, clean out, map, and sample the two adits discovered in the 1994 reconnaissance program that appear to cross-cut the mineralized structure. Based on the existing data and the data to be collected from the adits, select three Reverse Circulation drill hole locations to evaluate the gold potential of the postulated east dipping structural zone. Continue geologic surface exploration and follow-up the 1992 Crownex Dighem airborne geophysical data as it relates to the Spruce claims. Additionally,

consideration should be given to adding mineral holdings along the east side of the Spruce and Bonanza 5 mineral claims.

Respectfully submitted

A handwritten signature in cursive script, appearing to read "R.E. Miller". The signature is written in dark ink and is positioned above the printed name.

R.E. Miller

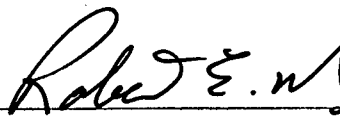
APPENDIX A  
STATEMENT OF QUALIFICATIONS

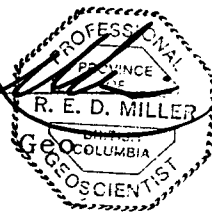
STATEMENT OF QUALIFICATIONS

I ROBERT E. MILLER, of Spokane, Washington U.S.A., DO  
HEREBY CERTIFY:

1. THAT I am a consulting geologist with a business address of 367 Gold Street, Greenwood, British Columbia, VOH 1J0.
2. THAT I am a graduate from Brigham Young University with a Bachelor of Science degree in Geological Engineering (1969).
3. THAT I have practised my profession continuously since graduation.
4. THAT I personally conducted the 1994 exploration program discussed in this report.
5. THAT I am a Director and Shareholder of gold City Resources.

DATED this 7<sup>th</sup> day of Dec, 1994.

  
Robert E. Miller P.  
Geological Engineer





APPENDIX B  
STATEMENT OF EXPENDITURES

SPRUCE CLAIMS  
STATEMENT OF COST

Manpower

Bob Miller - geologist 2 days \$250.00 x 2	\$ 500.00
John Kemp - prospector 4 days \$175.00 x 4	700.00
Kim Anshetz - helper 4 days \$125.00 x 4	500.00

Vehicles

1 truck x 2 x \$65.00	130.00
1 truck x 4 x \$45.00	180.00

Geophysics

Magnetometer rental \$15.00/day x 4 days	60.00
---	-------

Assays

42 soil @\$8.30	348.00
18 rock chip samples @\$14.00	253.80

Report, shipping, office, reclamation etc	600.00
---	--------

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Total	\$ 3271.80
-------	------------

APPENDIX C  
REFERENCES

## REFERENCES

- British Columbia Minister of Mines Annual Report. 1901: pg. 106, 1904; pg, 299.
- Crowe, Gregory G., M.Sc. P.Geol. and Forbes, Jonna R. B.Sc.. 1985 Geological, Geochemical and Geophysical Report on the Granville Mountain Property of Prominent Resources Corporation B.C. Assessment Report 14733.
- Fox, M.. B.Sc., F.G.A.C. Geological and Geochemical Report on the Molly Gibson Property owned by Herman Hoehn B.C. Assessment Report 11,989.
- Miller, R.E.. 1993 Summary Report on the Spruce Group. Assessment Report for Crown Resources Corp.
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- Ruzicka, Stan, Personal communication. Maps, and Records 1991.
- Shear, H.H.. 1973 Progress Report on Donna Mines. November 1973.
- Templeman-Kluit, D.J., 1989: Geology. Penticton. British Columbia. Geological survey of Canada, Map 1736A. Scale 1:250,000.
- Von Einsiedel, C.A.. 1989. Prospecting Report Josh Claim Group. Assessment Report 18560.

APPENDIX D  
CERTIFICATE OF ANALYSIS  
and  
ANALYTICAL PROCEDURES



# Chemex Labs Ltd.

Analytical Chemists

Geochemists

Registered Assayers

212 Brooksbank Ave.  
North Vancouver, B.C.  
Canada V7J 2C1

Phone: (604) 984-0221

Telex: 04-352597

Fax: (604) 984-0218

Au (oz/T) : Code 398

Gold analysis is carried out by standard fire assay techniques. In the sample preparation stage the screens are checked for metallics which, if present, are assayed separately and calculated into the results obtained from the pulp assay.

A 0.5 assay ton sample is fused with a neutral flux inquarted with 2 mg of Au-free silver and then cupelled.

Silver beads for AA finish are digested for 1/2 hour in 1 ml HNO<sub>3</sub>, then 3 ml HCl is added and digested for 1 hour. The samples are cooled and made to a volume of 10 ml, homogenized and run on the AAS with background correction.

Detection Limit 0.002 oz/T

Code 981 is the same as 398, but performed on a rush basis.

Gold FA-AA ppb - Chemex Code 100

A 10 gram sample is fused with a neutral flux inquarted with 6 mg of Au-free silver and then cupelled.

Silver beads for AA finish are digested for 1/2 hour in 0.5 ml HNO<sub>3</sub>, then 1.5 ml HCl is added and digested for 1 hour. The samples are cooled and made to a volume of 5 ml, homogenized and run on the AAS with background correction.

Detection limit: 5 ppb



# Chemex Labs Ltd.

Analytical Chemists \* Geochemists \* Registered Assayers  
212 Brooksbank Ave., North Vancouver  
British Columbia, Canada V7J 2C1  
PHONE: 604-984-0221

To: MILLER, ROBERT

P.O. BOX 2941  
GRAND FORKS, BC  
V0H 1H0

A9425591

Comments: ATTN: B. MILLER

**CERTIFICATE**

**A9425591**

(LJP) - MILLER, ROBERT

Project: SPRUCE GROUP

P.O. #:

Samples submitted to our lab in Vancouver, BC.  
This report was printed on 16-SEP-94.

## SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
201	41	Dry, sieve to -80 mesh
203	1	Dry, sieve to -35 mesh
205	1	Geochem ring to approx 150 mesh

## ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
100	42	Au ppb: Fuse 10 g sample	FA-AAS	5	10000



# Chemex Labs Ltd.

Analytical Chemists \* Geochemists \* Registered Assayers  
212 Brooksbank Ave., North Vancouver  
British Columbia, Canada V7J 2C1  
PHONE: 604-984-0221

To: MILLER, ROBERT

P.O. BOX 2941  
GRAND FORKS, BC  
V0H 1H0

Project : SPRUCE GROUP  
Comments: ATTN: B. MILLER

Page Number : 1  
Total Pages : 2  
Certificate Date: 16-SEP-94  
Invoice No. : I9425591  
P.O. Number :  
Account : LJP

## CERTIFICATE OF ANALYSIS

### A9425591

SAMPLE	PREP CODE	Au ppb FA+AA										
L47600N 21300E	201 --	< 5										
L47600N 21325E	201 --	< 5										
L47600N 21350E	201 --	< 5										
L47600N 21375E	201 --	< 5										
L47600N 21400E	201 --	< 5										
L47600N 21425E	201 --	< 5										
L47600N 21450E	201 --	< 5										
L47600N 21475E	201 --	< 5										
L47600N 21500E	201 --	< 5										
L47600N 21525E	201 --	35										
L47600N 21550E	201 --	< 5										
L47600N 21575E	201 --	< 5										
L47600N 21600E	201 --	< 5										
L47600N 21625E	201 --	< 5										
L47600N 21650E	201 --	< 5										
L47600N 21675E	201 --	< 5										
L47600N 21700E	201 --	< 5										
L47600N 21725E	201 --	< 5										
L47600N 21750E	201 --	< 5										
L47600N 21775E	201 --	40										
L47600N 21825E	201 --	< 5										
L47600N 21850E	203 205	< 5										
L47600N 21875E	201 --	35										
L47600N 21900E	201 --	25										
L47600N 21925E	201 --	10										
L47600N 21950E	201 --	< 5										
L47600N 21975E	201 --	< 5										
L47600N 22000E	201 --	< 5										
L47600N 22025E	201 --	45										
L47600N 22050E	201 --	140										
L47600N 22075E	201 --	< 5										
L47600N 22100E	201 --	45										
L47600N 22125E	201 --	320										
L47600N 22150E	201 --	70										
L47600N 22175E	201 --	< 5										
L47600N 22200E	201 --	< 5										
L47600N 22225E	201 --	10										
L47600N 22250E	201 --	< 5										
L47600N 22275E	201 --	< 5										
L47600N 22300E	201 --	< 5										

CERTIFICATION: *Theresa Walsh*





# Chemex Labs Ltd.

Analytical Chemists \* Geochemists \* Registered Assayers  
212 Brooksbank Ave., North Vancouver  
British Columbia, Canada V7J 2C1  
PHONE: 604-984-0221

To: MILLER, ROBERT

P.O. BOX 2941  
GRAND FORKS, BC  
V0H 1H0

Project : SPRUCE GROUP  
Comments: ATTN: B. MILLER

Page Number :2  
Total Pages :2  
Certificate Date: 16-SEP-94  
Invoice No. :19425591  
P.O. Number :  
Account :LJP

## CERTIFICATE OF ANALYSIS

A9425591

SAMPLE	PREP CODE	Au ppb FA+AA									
BL47600E 21800E BL47650N 21800E	201 -- 201 --	35 < 5									

CERTIFICATION: Theresa Vank



# Chemex Labs Ltd.

Analytical Chemists \* Geochemists \* Registered Assayers  
212 Brooksbank Ave., North Vancouver  
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PHONE: 604-984-0221

To: MILLER, ROBERT

P.O. BOX 2941  
GRAND FORKS, BC  
V0H 1H0

A9425592

Comments: ATTN: B. MILLER

**CERTIFICATE**

**A9425592**

(LJP) - MILLER, ROBERT

Project: SPRUCE GROUP  
P.O. #:

Samples submitted to our lab in Vancouver, BC.  
This report was printed on 16-SEP-94.

## SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	18	Geochem ring to approx 150 mesh 16-25 lb crush and split
276	18	

## ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
100	18	Au ppb: Fuse 10 g sample	FA-AAS	5	10000



# Chemex Labs Ltd.

Analytical Chemists \* Geochemists \* Registered Assayers  
212 Brooksbank Ave., North Vancouver  
British Columbia, Canada V7J 2C1  
PHONE: 604-984-0221

To: MILLER, ROBERT

P.O. BOX 2941  
GRAND FORKS, BC  
VOH 1H0

Project : SPRUCE GROUP  
Comments: ATTN: B. MILLER

Page Number : 1  
Total Pages : 1  
Certificate Date: 16-SEP-94  
Invoice No. : 19425592  
P.O. Number :  
Account : LJP

## CERTIFICATE OF ANALYSIS A9425592

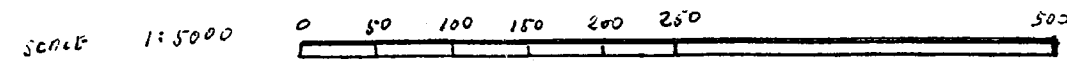
SAMPLE	PREP CODE	Au ppb FA+AA										
94BZ 100R	205 276	< 5										
94BZ 101R	205 276	< 5										
94BZ 102R	205 276	< 5										
94BZ 103R	205 276	< 5										
94BZ 104R	205 276	< 5										
94BZ 105R	205 276	< 5										
94BZ 106R	205 276	< 5										
94BZ 107R	205 276	15										
94BZ 108R	205 276	60										
94BZ 109R	205 276	115										
94BZ 110R	205 276	< 5										
94BZ 111R	205 276	< 5										
94BZ 112R	205 276	180										
94BZ 113R	205 276	< 5										
94BZ 114R	205 276	< 5										
94BZ 115R	205 276	25										
94BZ 116R	205 276	30										
94BZ 117R	205 276	55										

CERTIFICATION: *John Vank*

23,635

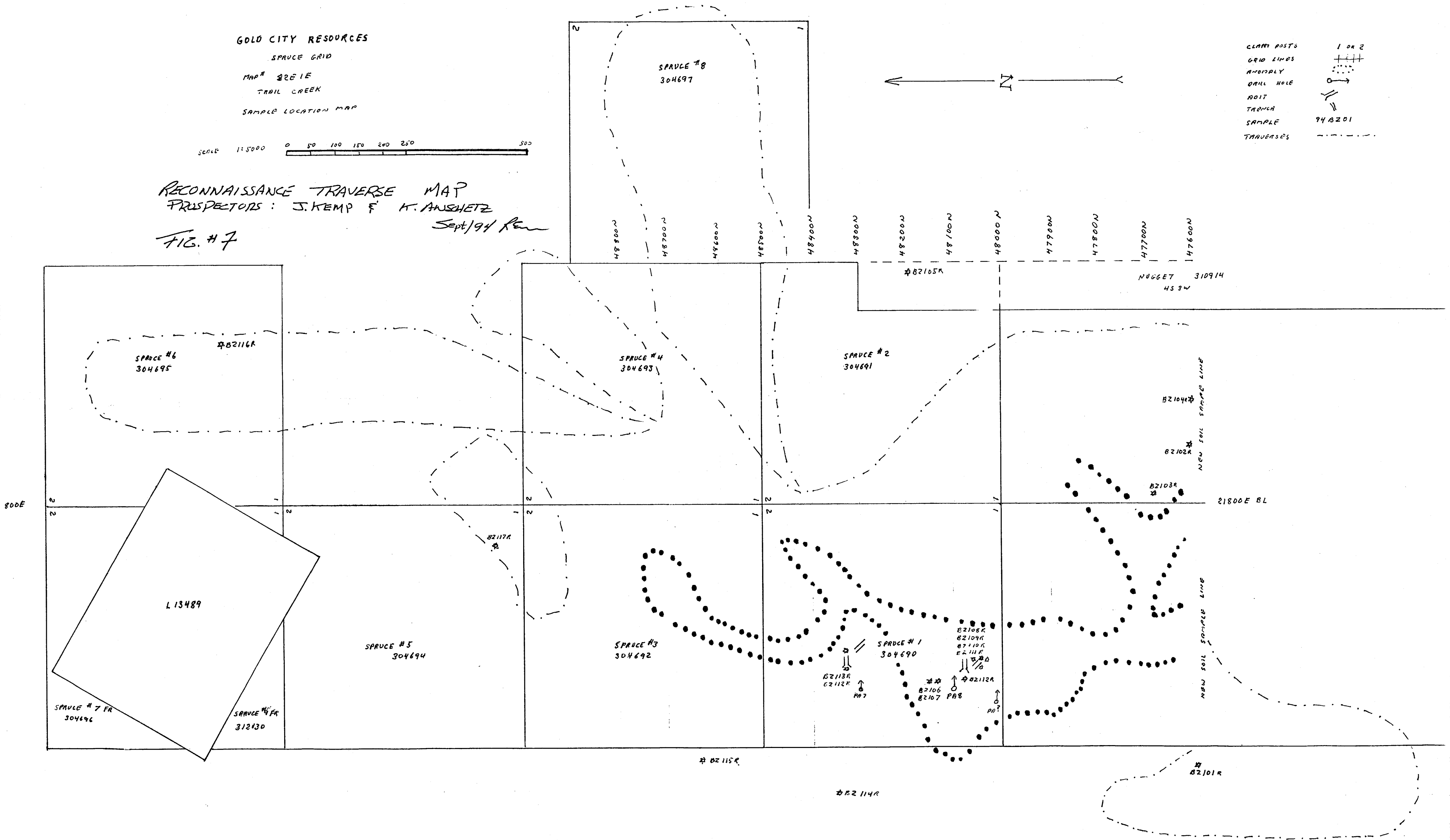
GOLD CITY RESOURCES

SPRUCE GRID  
MAP # 22E 1E  
TRAIL CREEK  
SAMPLE LOCATION MAP



RECONNAISSANCE TRAVERSE MAP  
PROSPECTORS: J. KEMP & M. ANSCHETZ  
Sept/94 km  
FIG. # 7

- CLAMP POSTS 1 OR 2
- GRID LINES
- ANOMALY
- DRILL HOLE
- ROIT
- TRAIL
- SAMPLE 74 BZ 01
- TRAVERSES



REVISIONS	BY
1/01/94	RM

PAULSON PROJECT - SPRUCE GROUP - TRAIL CREEK MINING DIVISION B.C.  
 -80 MESH GOLD IN SOIL GEOCHEM ASSAYS IN P.P.B.  
 1992 REVERSE CIRCULATION DRILL HOLE COLLARS AND NUMBERS.

FIG #6

Date	
Scale	1:400
Drawn	RM
Job	Paulson Spruce
Sheet	1
Of	1 Sheets

**LEGEND**

Grid line 150m  
 gold in p.p.b. 130

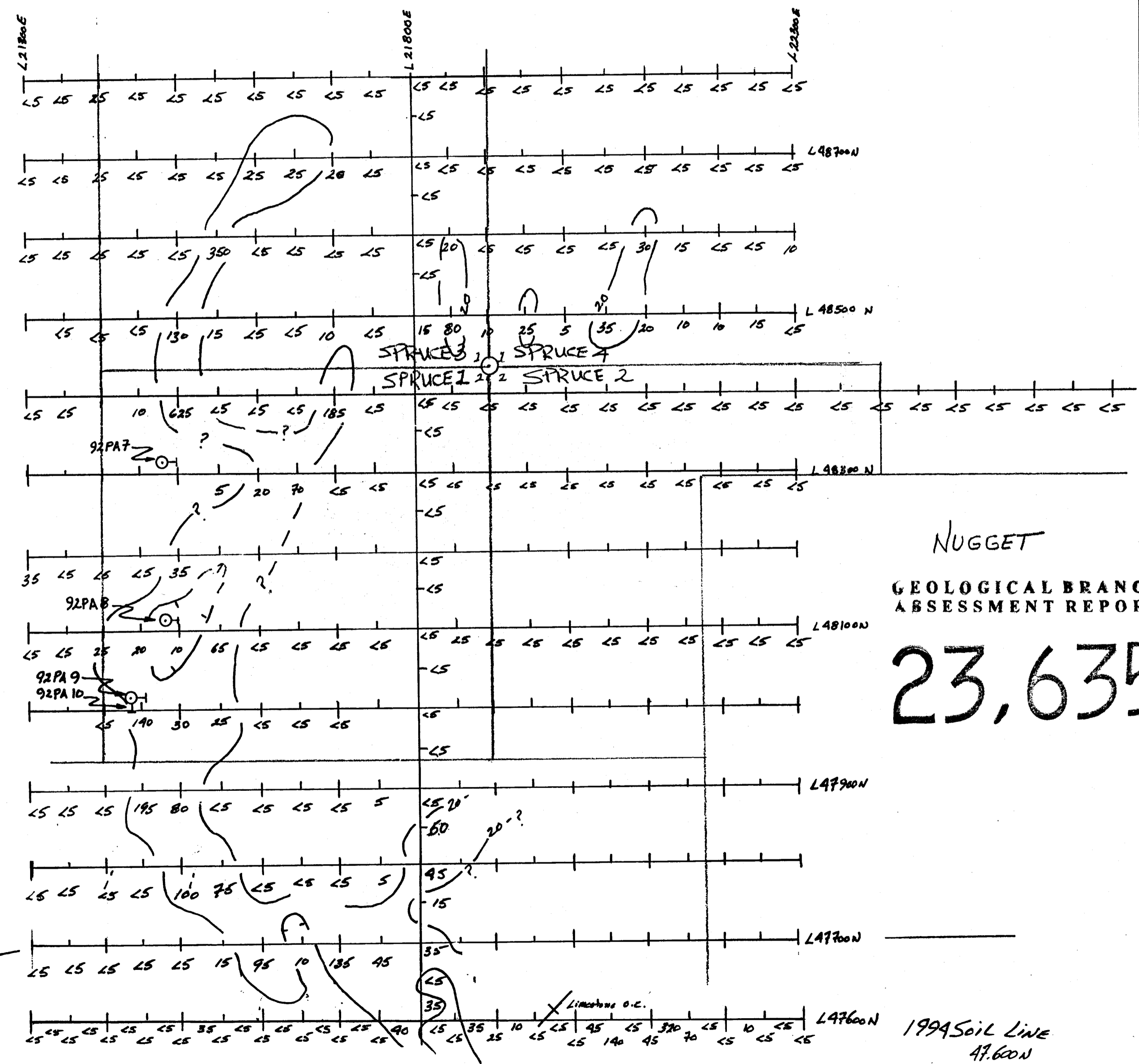
gold Value Contour 20

drill hole collar w/ direction of hole number 92PA7

Claim line & Corner



Volcanics & Intrusives  
 Metasediments



**NUGGET**  
 GEOLOGICAL BRANCH  
 ASSESSMENT REPORT  
**23,635**

1994 Soil Line  
 47.600N