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PLACER GOLD EVALUATION REPORT  
MCQUESTEN RIVER DISTRICT, YUKON TERRITORY  
CLEAR CREEK PLACER AREA

on

MCQUESTEN RIVER TRIBUTARIES  
VANCOUVER CREEK AND  
THOROUGHFARE - RIGHT HOOK CREEKS

LATITUDE 63°40'N

LONGITUDE 137°05'W

YUKON PROSPECTING LEASES

YUKON PLACER CLAIMS

MAYO MINING DISTRICT

YUKON TERRITORY

N.T.S. SHEETS 115-P-10 AND 11

for

CARSON GOLD CORP.  
VANCOUVER, BRITISH COLUMBIA

by

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TRON DUIK CONSULTANTS LTD.  
CALGARY, ALBERTA  
NOVEMBER 4, 1988

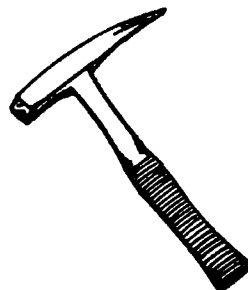


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## INTRODUCTION

### General

In 1885 the Stewart and McQuesten River, Yukon Territory, was the site of the first prospecting and mining in the Yukon, when fine gold was discovered on the bars of the Stewart River below the confluence of the McQuesten River. The fine gold was found at several localities along the Stewart and McQuesten Rivers and tributaries. Coarse gold was discovered on numerous creeks north of the McQuesten River area, notably on Clear Creek and tributaries. The fine gold occurs along the rivers where gravel material has been eroded from glacial debris brought by glacial ice from areas containing gold-bearing creeks.

The McQuesten River is a major tributary of the Stewart River and the site of McQuesten is located at the confluence of the two rivers. Shortly after the 1885 discovery of gold on the Stewart River bars, the placer miners established the small settlement of McQuesten to stay during the winter months. McQuesten later became a roadhouse on the Whitehorse to Dawson winter trail and was abandoned in the 1950's.

### Vancouver Creek and Tributaries

Vancouver Creek is a right-limit tributary of the McQuesten River that is located approximately 20 miles (32.2 km) upstream from the confluence of the McQuesten River with the Stewart River. There are two major tributaries that drain into Vancouver Creek; (1) right-limit Thoroughfare Creek approximately 3.25 miles (5.23 km) from its confluence, and (2) left-limit Right Hook Creek 4.25 miles (6.8 km) upstream from its confluence.

On November 24, 1987 an "Agreement To Prospect" on placer claims and leases located on Vancouver-Right Hook-Thoroughfare Creeks, was signed by Harry McGinty of Stewart Crossing, Y.T. and Carson Gold Corp. of Vancouver, British Columbia. The agreement provided for placer exploration work to be conducted on Thoroughfare Creek placer claims Golden 1 - 53, grant numbers P15684 - P15763, Vancouver Creek placer lease PL7467 and Right Hook Creek PL7469.

During November, 1987, Mr. Gary Crawford discussed the placer prospects of lower Vancouver Creek on placer claims Poker 1 - 53, grant numbers P15631 - P15683 with the registered owner Mr. Alan Lewis, Ponoka, Alberta.

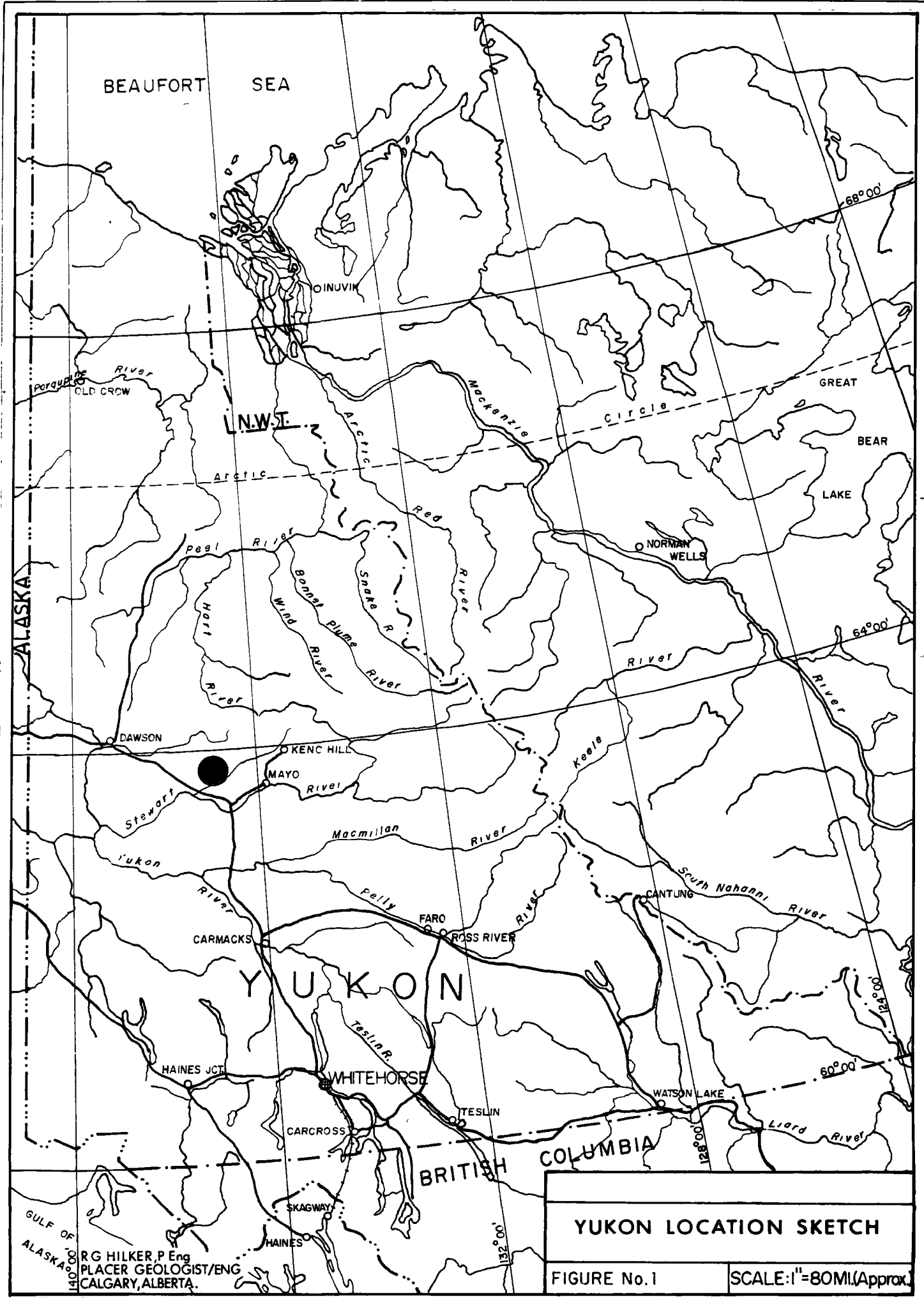
During late January, 1988 to February 29, 1988, Carson Gold Corp., Vancouver, British Columbia, conducted a test pit type of placer exploration program at 15 sites on Vancouver, Thoroughfare and Right Hook Creeks. Mr. Dennis Wiens, project foreman, collected approximately 250 pounds of gravel samples from eight (8) test pits. Due to winter weather conditions, the gravel samples could not be processed for gold content on site. The eight (8) gravel samples were collected from the test pit sites and transported to Dawson City, March 9 - 23, 1988. Considerable road work was required to clear 14 miles (22.5 km) of access road from the site of McQuesten/Klondike Hwy. to the

confluence of Vancouver Creek and the McQuesten River. The 7.5 miles (12 km) of rough tractor trail from the mouth of Vancouver Creek to Right Hook Creek required widening and clearing for the backhoe. A total of 2.37 miles (4.2 km) of road construction was required for access to test sites upstream on Vancouver Creek from the confluence of Right Hook Creek and upstream on Thoroughfare Creek. The Vancouver Creek placer test pit program was organized and supervised by Gary W. Crawford, Wolverine Gold Mines, on behalf of Carson Gold Corp. Mr. Dennis Wiens, Whitehorse, Y.T., was the field foreman during the sampling of test sites on Vancouver, Right Hook and Thoroughfare Creeks.

On August 5, 1988, P. Randy Reifel, President of Carson Gold Corp. finalized and authorized R. G. Hilker, P. Eng. to examine the test sites on Vancouver, Right Hook and Thoroughfare Creeks and prepare a placer evaluation report on the 1988 placer exploration program. The placer evaluation report was to be filed with the Yukon Energy and Mines Branch, Economic Development Mines and Small Business; Exploration Incentive Program. On the 27th of August, 1988, R. G. Hilker, P. Eng. and Dennis Wiens, project foreman went to Vancouver Creek in a chartered Trans North Air, Jet Ranger helicopter and examined the test pit sites. On November 2nd, 1988, the writer telephoned the Mayo Mining Recorder, Mr. R. G. Ronaghan, for information of placer claims and placer leases staked on Vancouver, Right Hook and Thoroughfare Creeks.

This Placer Evaluation Report of 1988 exploration conducted on Vancouver, Right Hook and Thoroughfare Creeks was prepared from information documented by Carson Gold Corp. and supplied to the writer.

The reader is cautioned that R. G. Hilker, P. Eng., has no direct knowledge of sampling procedure of the reported 15 test pits excavated, weight of samples from 8 test pits sampled, volume of pits excavated, exact location/size of test pits and weight or value of placer gold recovered from grab samples of gravels taken from test pits. The writer has no direct knowledge of dates of exploration conducted on Vancouver, Right Hook and Thoroughfare Creeks, mobilization and demobilization from the area and accuracy of sample processing or values reported.



BEAUFORT SEA

ALASKA

N.W.T.

YUKON

BRITISH COLUMBIA

YUKON LOCATION SKETCH

FIGURE No.1

SCALE: 1" = 80 MI. (Approx.)

GULF OF ALASKA

R.G. HILKER, P. Eng.  
PLACER GEOLOGIST/ENG  
CALGARY, ALBERTA.

## History Stewart River/McQuesten

Gold had been discovered in the Yukon by Campbell and other traders in the service of the Hudson's Bay Company. It was not until 1872, however, that regular prospectors began to direct their steps toward the Yukon. In September of that year Arthur Harper, a native of County Antrim, Ireland, together with Frederick Harper and four other miners started for the Mackenzie river and the Yukon Territory. At the mouth of the Nelson, Harper and his party met L. N. (Jack) McQuesten, Alfred H. Mayo and James McKnipp. Proceeding by way of the Mackenzie river, Harper and his party crossed from Fort MacPherson to the Porcupine and arrived at Fort Yukon on the 15th of July, 1873.

When Alaska was purchased from Russia in 1867 by the United States, the Russian company's vessels and trading posts were acquired for the firm of Hutchinson, Kohl & Co., San Francisco. In 1869, the Alaska Commercial Company was incorporated and three years later this company purchased the holdings of Hutchinson, Kohl & Co. In 1901 the Alaska Commercial Company merged with the Alaska Exploration Company and the name of the joint concern became the Northern Commercial Company.

The Alaska Commercial Company established posts along the Yukon River and for many years subsequent to the retirement of the Hudson's Bay Company had a monopoly of trade in the Yukon. In 1892 a competing company known as the North American Transportation and Trading Company was organized in Chicago. This company established its chief trading and distributing post at Cudahy, a short distance below the mouth of the Forty Mile river.

In 1874, Jack McQuesten established a trading post for the Alaska Commercial Company at Fort Reliance about six miles below the present city of Dawson. In the same year Harper joined McQuesten in the trading business and in 1875, Harper and Mayo were in charge of Fort Reliance.

In the summer of 1882 twelve miners crossed Dyea pass and spent the winter at Fort Reliance. One of these miners was Joe Ladue who later became identified with the development of the territory and who subsequently occupied the trading post at Ogilvie.

In 1885 mining commenced on the Stewart river and in the following year Harper, McQuesten and Mayo, who were trading on commission for the Alaska Company, established a trading post at the mouth of the Stewart. Shortly after the discovery of gold on the Fortymile in 1887 they also established another trading post at the mouth of the Fortymile river. Harper also commenced business at Fort Selkirk, on the site of the old post which was first established by Campbell, and built a new post at Ogilvie opposite the mouth of the Sixtymile river. During this time, Harper has prospected for gold in the Fortymile, Sixtymile and Tanana districts, and for copper in the White River district, but was not particularly successful in his mining operations.

In 1886 about 100 miners were rocking bars along the Stewart river, the average per man for the season, according to Mr. Ogilvie being about \$100 per day. In the autumn of 1886 coarse gold was discovered in the Fortymile river, and as soon as the news of the discovery reached the Stewart the usual stempede occurred. In this year the number of miners in the Yukon basin may be stated at 250, there being 200 on the Fortymile and about 50 on the Stewart.

## LOCATION AND ACCESS

### General Location

Vancouver, Right Hook, Thoroughfare Creeks are located on NTS Sheet 115-P-11 (McQuesten) and 115-P-10 (Moose Creek). The area of the 1988 placer exploration is centered near Latitude  $63^{\circ}40'N$  and Longitude  $137^{\circ}05'W$ . Vancouver Creek is a right-limit tributary of the McQuesten River, located approximately 20 miles (32.2 km) upstream from the confluence of the McQuesten River with the Stewart River. Two major tributaries drain into Vancouver Creek; (1) right-limit Thoroughfare Creek approximately 3.25 miles (5.23 km) upstream from its confluence, and (2) left-limit Right Hook Creek 4.25 miles (6.8 km) upstream from its confluence. The placer creeks are located in the Mayo Mining District, Yukon Territory.

- 1) Vancouver Creek (Lat.  $63^{\circ}38'N$  - Long.  $137^{\circ}05'W$ ) a right-limit tributary of the McQuesten River.
  - Length - 18 miles (95,040 ft.) or 28.96 km (28,955 meters).
  - Elevation Headwaters - 3,900 ft. (1188.2 meters)
  - Elevation Mouth ----- 1,550 ft. ( 472.24 meters)
  - Elevation Difference - 2,350 ft. ( 715.97 meters)
  - Gradient Creek ----- 2.47%
  
- 2) Right Hook Creek (Lat.  $63^{\circ}41'N$  - Long.  $137^{\circ}03'W$ ) a left-limit tributary that flows into Vancouver Creek 4.25 miles (6.8 km) upstream from the confluence of Vancouver Creek and the McQuesten River. The creek was named by H. S. Bostock - G.S.C. and his crew in 1949 (the outline of the creek, when mapped, suggested the boxing term right-hook).
  - Length 13.75 miles (72,600 ft.) or 22.12 km (21,119 meters).
  - Elevation Headwaters - 3,700 ft. (1127.3 meters)
  - Elevation Mouth ----- 1,850 ft. ( 563.6 meters)
  - Elevation Difference - 1,850 ft. ( 563.6 meters)
  - Gradient Creek ----- 2.55%
  
- 3) Thoroughfare Creek (Lat.  $63^{\circ}41'N$  - Long.  $137^{\circ}05'W$ ) a right-limit tributary that flows into Vancouver Creek 3.25 miles (5.23 km) upstream from the confluence of Vancouver Creek and the McQuesten River. The creek was named by H. S. Bostock, G.S.C. in the summer of 1949 as the old Conservative Trail to Clear Creek runs along the banks of the stream.
  - Length - 11.94 miles (63,030 ft.) or 19.2 km (19,203 meters).
  - Elevation Headwaters - 3,200 ft. (974.9 meters)
  - Elevation Mouth ----- 2,350 ft. (716.0 meters)
  - Elevation Difference - 850 ft. (259.0 meters)
  - Gradient ----- 1.35%

- 4) McQuesten River (Lat.  $63^{\circ}33'N$  - Long.  $137^{\circ}27'W$ ) N.T.S. Sheet 115-P, a major right-limit tributary of the Stewart River. The river was named for L. N. "Jack" McQuesten who was born in 1836 at Lithfield, New Hampshire, U.S.A. During the winter of 1882-83 the first territory placer miners wintered at Fort Reliance on the Yukon River. The eleven placer miners conducted the first "miners meeting" to be held in the fledgling territory and "Jack McQuesten" was elected the first Mining Recorder.
- 5) The Vancouver Creek placer property is located on the following listed National Topographic System (N.T.S.) 1:50,000 topography sheets by the Surveys and Mapping Branch, Dept. of Mines and Technical Surveys, 1963.
  - McQuesten, Y.T., NTS Sheet 115-P-11
  - Moose Creek, Y.T., NTS Sheet 115-P-10
  - Clear Creek, Y.T., NTS Sheet 115-P-14
  - Sprague Creek, Y.T., NTS Sheet 115-P-15

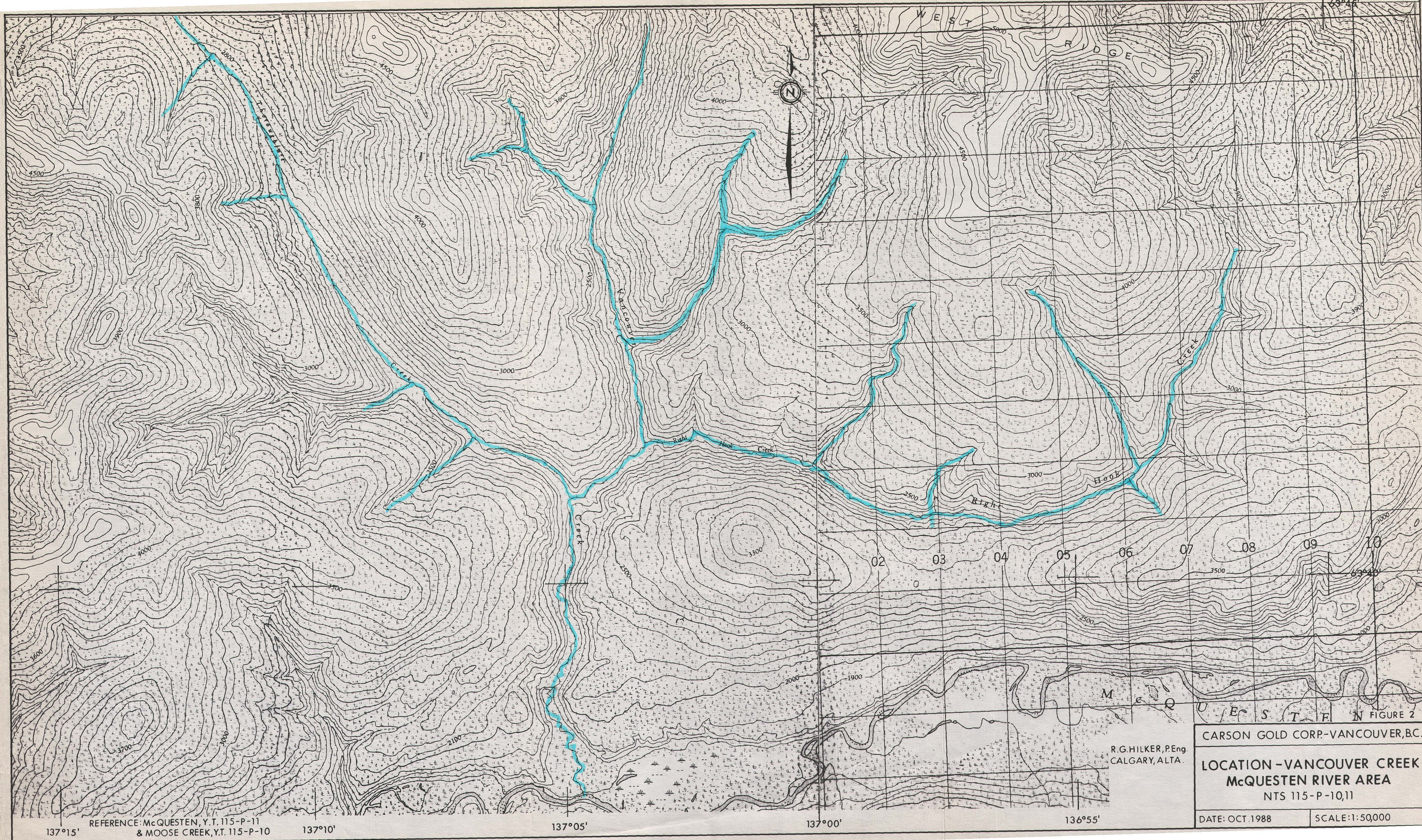
Access Vancouver Creek

Access to the Vancouver Creek area is from the Klondike Hwy 84 miles (135 km) southeast of Dawson City at the old site of McQuesten and then by a truck road 20 miles (32.2 km) upstream on the right limit of the McQuesten River valley. The McQuesten emergency airstrip is located approximately 18 miles (29 km) northeast of the site of McQuesten and the Klondike Hwy. The airstrip is located on the truck road to Vancouver Creek.

Access Distances - Klondike Hwy.

	<u>Miles</u>	<u>Kilometers</u>
Whitehorse - McQuesten	246	396
Whitehorse - Stewart Crossing	217	349
Stewart Crossing - McQuesten	29	47
McQuesten - Dawson City	84	135
Stewart Crossing - Dawson City	113	182





REFERENCE: McQUESTEN, Y.T. 115-P-11  
& MOOSE CREEK, Y.T. 115-P-10

R.G. HILKER, P.Eng.  
CALGARY, ALTA.

FIGURE 2  
CARSON GOLD CORP.-VANCOUVER, B.C.  
**LOCATION - VANCOUVER CREEK  
McQUESTEN RIVER AREA**  
NTS 115-P-10,11  
DATE: OCT. 1988      SCALE: 1:50,000

YUKON PLACER CLAIMS AND LEASES

Leases to Prospect are issued under the provisions of the Yukon Placer Mining Act for a one-year period and renewable a maximum of three years. The leases are issued for the purpose of placer gold prospecting on a drainage system and cannot be mined until converted to "placer claims". The Yukon Placer Leases - PL7647 - 5 miles is located on upper Vancouver Creek and PL7469 - 5 miles is located on lower Right Hook Creek. The Yukon Placer Claims Poker 1 - 53 (incl.) grant numbers P15631 - P15683 are located on the lower 5 miles of Vancouver Creek. The Yukon Placer Claims Golden 1 - 53 (incl.) grant numbers P15684 - P15736 are located on the lower 5 miles of Thoroughfare Creek. The placer leases to prospect PL7647 and PL7469 are recorded in the Mayo Mining District, Yukon Territory and are plotted on NTS Sheets 115-P-10 and 11. The leases are located approximately near Lat. 63°41'N - Long. 137°03'W. The Yukon Placer Claims Poker 1 - 53 (incl.) and Golden 1 - 53 (incl.) are recorded in the Mayo Mining District, Yukon Territory and are plotted on NTS Sheets 115-P-10 and 11. The placer claims are located approximately near Lat. 63°40'N and Long. 137°05'W. The placer property creek claims and leases have not been legally surveyed and referenced to any baseline or government survey monuments.

The "creek" or "river" surveyed baselines are used to accurately locate placer claims staked within a drainage valley. Surveyed "creek baselines" were located on the major creeks and benches, in the Klondike district, to establish where the "Discovery Claims" were staked and be a reference as to where placer claims were located "Above Discovery" - A/D or, "Below Discovery" - B/D.

Records of Yukon Placer Claims and Leases

The writer has not conducted a certified search of the placer claims and leases records at or from the Mayo Mining Recorders office, located in Mayo, Y.T. The writer telephoned the Mayo Mining Recorders office on November 2, 1988 and requested verbal information concerning the validity of leases PL7467 and PL7469, and placer claim groups Poker 1 - 53 (incl.) and Golden 1 - 53 (incl.). The reader is cautioned by R. G. Hilker, P. Eng., that the information concerning the ownership and status of the Yukon placer claims and leases, that is recorded in the Mayo Mining District office, Mayo, Y.T., is not certified by the writer, as the information was documented by a telephone communication only. Therefore, any interested reader should contact the Mayo Mining Recorder and obtain certified copies of any recorders of interest concerning PL7467, PL7469, Golden 1 - 53 (incl.) claim group and Poker 1 - 53 (incl.) claim group.

1) Leases To Prospect - NTS Sheets 115-P-11 and 10.

<u>Creek</u>	<u>Lease Prospect</u>	<u>Length</u>	<u>Registered Owner</u>	<u>Anniversary Date</u>
Vancouver	PL7467	5 miles	Karl Blanchard Mayo, Y.T.	27 Oct. 1988
Right Hook	PL7469	5 miles	Richard Hager Mayo, Y.T.	27 Oct. 1988

\*\*\*\*\*

Note: The writer was advised November 2, 1988 that PL7467 and PL7469 lapsed 27 October, 1988.

2) Yukon Placer Claims - NTS Sheet 115-P-11

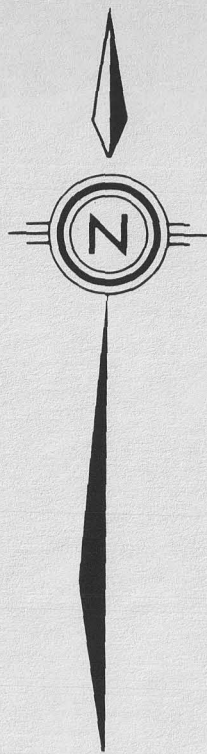
<u>Creek</u>	<u>Placer Claims</u>	<u>Numbers</u>	<u>Registered Owner</u>	<u>Anniversary Date</u>
Vancouver	Poker 1-53	P15631 - P15683	Alan Lewis Ponoka, Alberta	9 Oct. 1989
Thoroughfare	Golden 1-53	P15684 - P15736	Harry McGinty Stewart Crossing	9 Oct. 1988

Note: The writer was advised November 2, 1988 that placer claims Golden 1-53 (incl.) were grouped on 26 January 1988 - Grouping Certificate MP251. The claim group is presently under penalty provisions as no assessment work had been recorded for the claim group Golden 1-53 (incl.) to November 2, 1988.

137°10'

137°05'

63°45'



Thoroughfare

YUKON PLACER CLAIMS-GOLDEN 1-53(incl)  
P15684-P15736

PL 7467-5 MILE  
Vancouver Creek

Creek

YUKON PLACER CLAIMS  
POKER 1-53(incl.)  
P15631-P15683

Right

Hook Creek  
PL 7469-5 MILE

63°40'

RIVER

McQUESTEN

FIGURE 3

CARSON GOLD CORP-VANCOUVER, B.C.

PLACER CLAIM/LEASES  
VANCOUVER/RIGHT HOOK  
AND THOROUGHFARE CREEKS  
NTS 115-P-10,11

SCALE: 2 in. = 1 mile

SCALE: 1: 31,680

DATE: OCT. 1988

## GENERAL PLACER GEOLOGY

### Physiography and Glaciation

The McQueston River area lies within the Stewart Plateau, a sub-division of the Yukon Plateau. The Stewart Plateau is located on the northeast boundary of the Tintina Trench valley and is bounded by the Klondike River - Wernecke Mountains in the north, the Macmillan River on the south and the Selwyn/Hess Mountains to the east. Reference to the Stewart Plateau physiography is from G.S.C. Memoir 247 (P62-63-64) by H. S. Bostock - 1948.

#### Eastern Yukon Plateau

The Eastern Yukon Plateau is an area of plateau country lying between Selwyn Mountains on the northeast, Pelly Mountains on the south, Tintina Valley on the southwest, and Ogilvie Mountains on the north. This plateau area is broken by many isolated mountains and small mountain ranges, particularly in its northern, central, and extreme southeastern parts. The Eastern Yukon Plateau comprises three plateau areas, Pelly Plateau on the southeast, Macmillan Plateau in the middle, and Stewart Plateau on the north.

Stewart Plateau. The plateau area between Macmillan River and the southern fronts of Ogilvie and Wernecke Mountains is occupied by Stewart Plateau. A large part of this plateau has been mapped topographically and geologically. All of Stewart Plateau is broken into tablelands by a network of deeply cut, broad valleys. Some of these tablelands are remarkably level and little dissected, the streams of them flowing in open valleys with relatively gentle gradients. Others, notably in the western part of the plateau, north of McQueston River, which is mainly unglaciated, are, as a whole, deeply and intricately dissected by their streams, and tablelands are almost non-existent. The plateau itself is represented mainly by long, connected ridges, with very even, though narrow, summits. The valleys are deep and narrow to the heads of the stream, where they rise steeply and end abruptly. This type of dissection is typical of the unglaciated regions, but is lacking in the glaciated areas of Yukon Plateau.

In the east part of Stewart Plateau, and in other, similar glaciated areas, glaciation seems to have been a major factor in developing the present topography. Here the larger valleys have been accentuated, and form a network surrounding tablelands on which the tributary valleys are shallow where the ice-cover was thin or lacking. Isolated mountains or small ranges crown the higher parts of most of the tablelands. The best known of these are McArthur Range in the southwest and Gustavus Range in the north. Many of these tablelands are bounded by nearly parallel sides, producing, in plan, the parallel-ogram form mentioned in the preceding paragraph. A few are triangular or curved. The positions of the major valleys are closely connected with structural features, either anticlines, fault zones, or non-resistant strata, and the mountains are formed of hard quartzite members, granitic intrusions, or rocks hardened by contact metamorphism.

In several places in these tablelands are records of two, and in a few places three, distinct erosion surfaces. North and west of McQueston River, where the topography is not modified by glaciation, these are well shown. The erosion surface recognized widely across Yukon Plateau is apparent here at an elevation of about 4,250 feet, but the elevation of this surface varies by as much as several hundred feet, depending on the proximity to elevated areas on the one hand or to main valleys on the other. The main valleys are entrenched about 2,000 feet below this surface. Above this surface, at an elevation of about 5,000 feet, and generally a little higher, a second erosion surface is apparent, truncating the tops of the lower mountains and the spurs of the higher ones. Above this again, a third surface shows on the tops of the higher mountains at about 5,800 feet or more above sea-level. Eastward in other parts of the plateau, where the same sequence of surfaces is apparent, they are higher and their levels more widely separated. As in the lowest of these three surfaces, the upper two vary greatly in degree of development in different parts. Commonly they are undulating, and it is only here and there that they are relatively flat and stand out distinctly as separate surfaces.

The rocks of Stewart Plateau are mainly metamorphosed sediments, and are believed to be Precambrian. They are overlain along Macmillan River by upper Palaeozoic sediments, and granitic stocks intrude them in places. Pleistocene ice moved westward across the plateau, covering all parts in the east but those more than 5,000 feet high. West of a line through the mouth of Hess River nunataks become more extensive as the ice, pushing westward, its surface declining and its volume dwindling away, split into tongues following the main valleys, and ended at about the mouth of McQueston River. In McArthur and Gustavus Ranges numerous alpine glaciers extended down the valleys to join the main ice-sheet that surrounded the ranges.

### McQuesten River Area Geology

The Stewart Plateau is bounded on the southwest side by the Tintina Trench valley, that is a zone of intense fracturing, faulting and shearing. The geology within the Stewart Plateau is mainly Precambrian aged Yukon Group metamorphosed sediments that were intruded in parts, by Jurassic and/or Cretaceous aged granitic stocks. The northwest part of the Stewart Plateau south of the South Klondike River and Barlow Dome is underlain by Units 1 - 4 of the Precambrian aged Klondike Group. In parts the Yukon Group of metamorphic rocks of sedimentary, volcanic and unknown origin are intruded by younger Jurassic and/or Cretaceous age granitic Coast Intrusions. The Units 13 - 14 of the Coast Intrusions contain (13) syenite, monzonite and (14) granite, granodiorite, quartz monzonite rock types. Parts of the terrain is overlain by Tertiary and Later age Unit 19 alluvium stream deposits and (19a) White Channel Gravel of Pliocene and Later age. Quaternary - Post Glacial age alluvium stream deposits are deposited in the lower parts of the McQuesten and Stewart River valleys. Undivided surficial deposits Unit 21, of Units 20 - 19 and 19a, are Quaternary to Tertiary age (Quaternary to Pliocene) were deposited in the broad valley of the Tintina Trench.

The general area east of the Klondike Hwy., between the old sites of Barlow and McQuesten, are underlain by metamorphic rocks of the Yukon Group, intruded by granitic stocks of the Coastal Intrusions and overlaid by younger alluvial stream and surficial deposits. Within the area east of Barlow on Clear Creek and tributaries, gold bearing creek and White Channel gravels were discovered in 1886 and periodically mined to the present. Vancouver Creek and tributary Thoroughfare Creek are located to the south of upper Clear Creek and the height of land between the two drainage systems. Upper Clear Creek is placer mapped with Unit 19 - alluvium stream deposits. Thoroughfare and lower Vancouver Creeks are placer mapped with recent Quaternary aged alluvium stream deposits. During the 1988 summer field season a placer gold mining operation was conducted on the lower part of Vancouver Creek.

Rock Type Lithology - (H. S. Bostock - Map 1143A)

Units 1 - 4 (Yukon Group) contain metamorphic rocks of sedimentary, volcanic, and unknown origin and of Precambrian or uncertain age.

Unit 1 consists of hornblend, quartz, feldspar, and mica paragneisses, interbedded with micaceous quartzite, quartz-mica schist and limestone. In the southwest, gneiss predominates, whereas east of White Mountains, the rocks are dominantly thinly bedded, fine-grained, dark quartzite interbedded with mica and graphitic schists. In a few places this quartzite contains quartz pebbled. In general, the degree of metamorphism in Unit 1 is more intense to the southwest, and in all of it is more intense than in the units of the Yukon Group northeast of Tintina Trench.

Unit 2 is characterized by grey, massive, blocky fracturing quartzite interbedded with schist. It is overlain by Unit 3 characterized by mica and graphitic schists, with minor quartzite and limestone. This is in turn overlain by Unit 4, characterized by mica schist and micaceous quartzite in beds less than a foot thick. Much of it is very uniform, the beds alternating with gradational contacts for great thicknesses. Many of the rocks of Unit 4 are brown and contain rounded sand grains and quartz pebbles 1/8 to 1/4 inch, rarely 1 inch long. Between Moose and Bear Creeks, thinly bedded, grey quartzite with thin interbeds of mica schist forms much of this unit. Massive lenses of light grey to white, coarsely crystalline limestone occur in Units 1, 3, and 4.

Units 13 - 14 (Coast Intrusions)

The Coast Intrusions comprise a wide range of intrusive rocks ranging from moderately alkaline and mafic (13) to felsic and acidic (14) types. Some bodies of Unit 13 are intruded by rocks of Unit 14 but, in places, the contacts are gradational. Rocks of both units are intrusive into those of Unit 10c, and Unit 14 has contributed boulders to Unit 15. The age of Units 13 and 14 therefore conforms in a general way with that of the Coast Intrusions elsewhere. In the southeast, near Grand Valley Creek, however, some crushed and foliated bodies mapped as Unit 14 resemble Unit 5 and may be older. It is possible also that some bodies of Unit 12 are early, mafic or ultramafic phases of the Coast Intrusions.

Sills and dykes of Unit 14, though mainly granite and granodiorite, include quartz monzonite, quartz diorite, and syenite.

Along Tintina Trench, northeast and southwest of it, and around North Crooked Creek, most of Unit 14 is composed of coarse, light grey granite, commonly containing abundant phenocrysts of large Carlsbad-twinned feldspar.



Units 19-20-21 (Alluvium Stream and Surficial Deposits)

The surficial deposits range in age from pre-Pleistocene, to the present. The "White Channel gravels" (19a) are the oldest. They are more than 100 feet thick and lie on granite (14) and are overlain with a sharp, horizontal contact by brown gravels (19b). Unit 19a is mainly composed of well-rounded, slightly polished stones of the toughest of the local rocks, white vein-quartz and quartzite with some foreign black and grey chert. Schist and other dark, originally ferruginous rocks have been leached of their iron content. Though most of the stones are 3 inches or less in length, a few are as long as 10 inches. They are unsorted but their longer dimensions are horizontal. Unit 19a except for the foreign chert, is typical of the White Channel gravels of the Klondike.

A mantle of brown or rusty overburden (19) composed of gravel and alluvium is widespread in the north and southwest. It consists of rounded pebbles and cobbles, largely of tough foreign rocks such as chert, quartzite, diorite and greenstones, but includes a few local types. These materials form, in places, modified terraces where they are as much as 200 feet thick.

Great masses of Unit 19 lie in Tintina Trench. To the northwest they are continuous with the late Tertiary, Flat Creek gravels of the Klondike. Near Belleview Point they are overlain by fresh, grey till (21), which suggests a middle or early Pleistocene age for them.

Fresh, light grey overburden, mainly stream deposits and till, (21) is widespread below and southwest of the limit of the last major glacial advance. Included with it are areas of Units 19 and 20. In the banks of Stewart River, above Seventeen Mile, a gently undulating sheet of till, 10 to 20 feet thick, lies for several miles between two sets of gravels. A similar section occurs on lower Lake Creek, and the till at Belleview Point is like that in these sections. The till has a silty to clay-like body with scattered stones, commonly as long as 6 inches, and rarely striated boulders. The gravels, both above and below the till, and the till itself, are fresh, except that on Lake Creek, diorite stones in the till and in the gravel under it were seen to be crumbling. Throughout these, and in numerous other exposures of the gravels, the stones are well rounded and their surfaces are coarsely ground. The gravels vary in coarseness and are mingled with sand and silt. They exhibit the typical sorting and bedding of rapid-stream deposits. These materials are believed to be the debris and outwash deposits of the last major glacial advance of the Pleistocene Epoch.

TABLE OF FORMATIONS

CENOZOIC

Quaternary/Tertiary and Later

21 - Surficial deposits, undivided 20 and 19

Quaternary (Post-Glacial)

20 - Alluvium stream deposits

Tertiary and Later

Pliocene? and Later

19 - Alluvium stream deposits, 19a "White Channel Gravel"

MESOZOIC

Jurassic and/or Cretaceous

(13 - 14) - Coast Intrusions: granite, granodiorite, quartz monzonite,  
syenite monzonite

PROTEROZOIC

Ordovician? or Earlier

Yukon Group (1 - 4)

4 - Schist (mica/graphitic), quartzite, phyllite, limestone

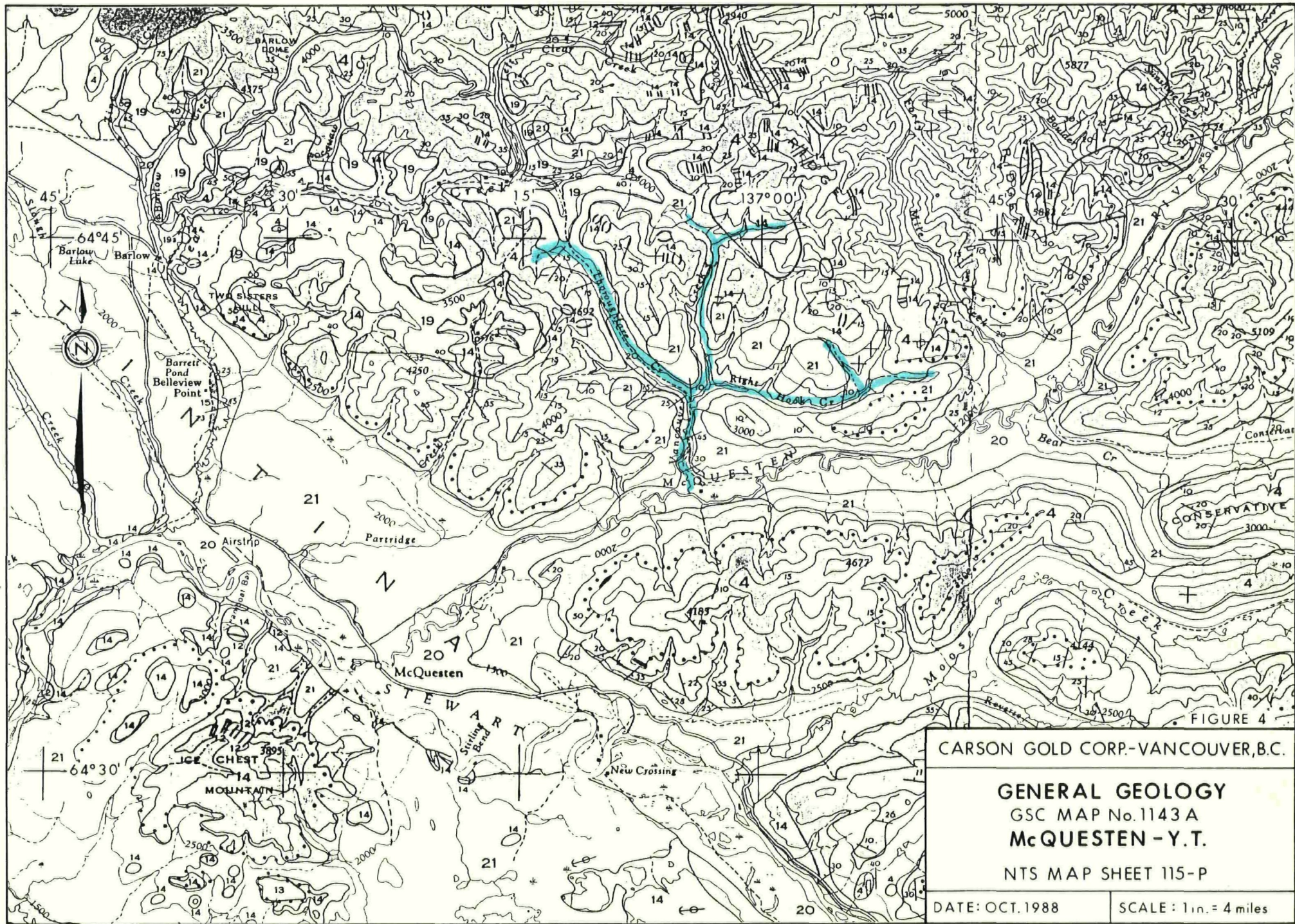
3 - Schist, (graphitic/micaceous), quartzite, limestone

2 - Quartzite, schist

1 - Yukon Group: paragneiss, quartzite, schist, phyllite, limestone

\*\*\*\*\*

Geology By: H. S. Bostock 1946 - 1949, GSC - Map 1143A  
McQuesten, Yukon Territory (NTS Sheet 115-P)



CARSON GOLD CORP.-VANCOUVER, B.C.

**GENERAL GEOLOGY**  
 GSC MAP No. 1143A  
**McQUESTEN - Y.T.**  
 NTS MAP SHEET 115-P

DATE: OCT. 1988

SCALE: 1 in. = 4 miles

## PRINCIPLES OF PLACER DEPOSITS

### General:

In the formation of placer deposits, mechanical concentration is the natural separation of heavy from light minerals by means of moving water or air by which the heavier minerals become concentrated into a payzone deposit. The placer minerals are released from host rock or veins by the weathering process. The heavy minerals and rock or vein material are washed slowly downslope to the nearest stream. Moving stream water sweeps away the lighter matrix and the heavier placer minerals sink to the bottom of the drainage creek or are moved downstream relatively short distances. From thousands of tons of debris, the few heavy minerals in each ton are gradually concentrated in the stream gravels until they accumulate in sufficient abundance to be classified a placer deposit. The very small amount of gold contained in the original matrix host rock and veins is concentrated in a stream system gravels in relatively small volume paystreak.

### Placer Deposits:

A placer deposit is described as a mass of gravel, sand, or similar material resulting from the decomposition of crumbling and erosion of solid rocks that contain particles or nuggets of gold, platinum, tin or other valuable minerals derived from the rocks or veins. Placer mining is a type of mining in which the surficial detritus or gravel is washed for gold or other valuable minerals. When water under pressure is employed to break down the gravels, the term hydraulic mining is generally used. There are deposits of detrital or gravel material containing gold which are buried below waste gravels too deep to be profitably extracted by surface mining. The deep buried gold-bearing gravel material must be worked by drifting beneath the overlaying barren material. The underground operation necessary to extract auriferous material from near bedrock is termed "drift mining".

### Payzone Gravels:

Placer concentrations can occur only if the valuable minerals possess the three properties; high specific gravity, chemical resistance to weathering and durability. Placer minerals that have these properties are gold, magnetite, ilmenite, garnet, zircon, hematite, chromite, epidote, olivine, limonite, rutile, pyrozone, monazite, native copper, tinstone and platinum. The black sand or heavy concentrate content of gold placers is commonly between 5 and 20 pounds of black sand concentrate per cubic yard of gravel. The heavy minerals are deposited within the gravels of a drainage system above and on bedrock. The concentration of heavy minerals in gravels is referred to as paystreak or payzone. The gold bearing payzone gravels above bedrock deposition dimensions are length, width and thickness. The payzone usually contains variable gold content along a continuous and discontinuous payzone. The gold bearing gravels are usually 5 - 12 feet thick above bedrock and overlaid by waste gravels. The heavy minerals and gold are worked into soft decomposed bedrock for 2 - 4 feet by water hydraulics.

## PLACER PROPERTY DEVELOPMENT

### GENERAL

Since the discovery of gold in the Yukon Territory at Forty Mile in 1886, the Sixtymile in 1892, the Klondike in 1896 and at Scroggie in 1898, the value of gold, method of recovery, and location have determined a placer gravel reserve. The economics of the time period involved had the effect of delineating profitable gravels from non-profitable gravels for the recovery of gold. The method of testing gravels for economic gold content varied with available financing, mining method and quantity of gravel to be mined.

The mining method chosen required a low volume or high volume of gravels to be processed; the methods were further affected by the technology available during a specific time period. The operation methods employed since 1881 have varied: river sand-bars by hand-rocking; on creeks and benches by hand-mining from a shaft and drifting laterally; hydraulicking and ground sluicing when water was available; dredging creek gravels; and by mechanical heavy duty equipment. Testing of placer gravels has been by hand-sunk shafts, hammer drilling, hand panning and by test cuts and pits excavated by machinery. Generally, because of the heterogeneous nature of placer gold distribution in the gravels, a large volume bulk sample of the gravels being tested is preferable to a small sample. However, placer gold usually occurs on or near the bedrock trap which retains the heavy gold particles and other heavy mineral concentrates; it is therefore necessary to test the surface area of bedrock and at depth into bedrock. When testing bedrock, the best method is to hand-pan bedrock samples that have been taken from surface and a few inches into the host rock. The strike, dip and type of host rock should be noted and recorded.

To explore, develop and place into production a placer property, the following described procedure is necessary and essential:

1. Basic Placer Exploration:
  - Exploration drilling
  - Detail drilling
  - Development drillingand/or
  - Pit samples (triangle method)
  - Open cut bulk sample
  - Payzone sample (backhoe)
2. Placer Feasibility Study:
  - Grade and volume
  - Mining plan
  - Costs/expenditures for development
3. Placer Production:
  - Placer operation
  - Operating costs

The average value of gold contained in the combined volumes of gravel and overlying black muck for the entire Klondike gold fields is reported to be 0.012 oz./cu. yd. or 0.373 gms/cu. yd. (Personal communication - R. L. Debicki).

## ECONOMIC PLACER EVALUATION

### Inferred Gravel Reserves and Grade

A representative placer gold sample is difficult to obtain, as the deposit is a mixture of fine sand, pebbles, cobbles and boulders that vary in the mass of aggregate in different proportions. To collect and test a representative placer sample all of the constituents of a deposit should be in the exact same proportion in which they occur in the aggregate mass. When testing a placer sample, containing heavy concentrate and high valued gold, any error in the gold content of the sample will drastically affect the final result. In an economic placer deposit the amount of gold by volume, may be in the order of one part gold to a hundred million parts of gravel. Placer ground having a gold-gravel ratio of 1:100,000,000 by volume is worth approximately \$1.86 per cubic yard (gold @ \$435/oz.). A single fly speck of gold in a pan of gravel is equivalent to about \$0.17 per cubic yard at \$435/oz. gold - 885 fineness. Theoretically, the problem can be overcome by taking a large bulk sample rather than a few pounds of gravel, but it is seldom practical or possible to take large samples. If the deposit is a large mass of small and uniform size of gravel the gold is more evenly distributed and a few samples are required to estimate the value. If the stream type of deposit contains a variety of material from sands to large boulders, with coarse erratically distributed gold particles, it will affect the number of samples to be taken from the aggregate.

Placer samples yield limited information because of the heterogenous nature of gold-bearing gravels. Correct sample interpretation of the test results depends upon a placer engineer's experienced judgement and geological deduction ability rather than on any set formulae application. A pre-determined optimum sample pattern is difficult to achieve for the purpose of evaluating a placer property. Initial sample evaluation should be flexible enough to determine if a property is not economic, or if good economic potential indicates further work on a closer sample pattern is warranted. However, the desired number of samples can rarely be taken on a placer property due to economics or available equipment. It is noted by the writer that the "placer investor or operator must either reject a property which is not 100% reliable and therefore the investor/operator must accept some degree of risk". The minimum number of samples taken, to evaluate a placer property, must be considered to be the frequency required to keep the risk within acceptable limits.

There are several placer geological features and reported grades per cubic yard of creek or bench gravels, from previous work, that indicate possible economic potential gravel reserves in the Klondike District. The final analysis of the data collected on the placer property is usually based on the placer geological knowledge of the area. The writer has followed the procedure to report precious metal values and sample technique reporting as followed by most Canadian Security Commissions and specified by the policy of the Ontario Securities Commission. The tested value of gravels are reported to indicate "inferred grade" and "possible gravel reserve", that is based on gold recovered from a sluice box washing plant.

Ontario Securities Commission Policy

- 1) Ore and Grade Classification: Canadian Securities Law Reports. The Ontario Securities Commission states in Policy 2, Statement (54 - 839), that care should be taken in the use of the word "ore", when preparing Engineer's Reports for securities purposes. The term "ore" is defined in the most recent Ontario Regulations as follows:
  - (a) ORE - means a natural aggregate of one or more minerals which, at a specified time and place, may be mined and sold at a profit, or from which some part may be profitably separated;
  - (b) Proven Ore or Measured Ore - means that material for which tonnage is computed from dimensions revealed in outcrops or trenches or underground workings or drill holes and for which the grade is computed from the results of adequate sampling, and for which the sites for inspection, sampling, and measurement are so spaced and the geological character so well defined that the size, shape, and mineral content are established, and for which the computed tonnage and grade are judged to be accurate within limits which shall be stated and for which it shall be stated whether the tonnage and grade of proven ore or measured ore are in situ or extractable, with dilution factors shown, and reasons for the use of these dilution factors clearly explained;
  - (c) Probable Ore or Indicated Ore - means that material for which tonnage and grade are computed partly from specific measurements, samples, or production data, and partly from projection for a reasonable distance on geological evidence, and for which the sites available for inspection, measurement, and sampling are too widely or otherwise inappropriately spaced to outline the material completely or to establish its grade throughout;
  - (d) Possible Ore or Inferred Ore - means that material for which quantitative estimates are based largely on broad knowledge of the geologic character of the deposit and for which there are few, if any, samples or measurements, and for which the estimates are based on an assumed continuity or repetition for which there are reasonable geological indications, which indications may include comparison with deposits of similar type, and bodies that are completely concealed may be included if there is specific evidence of their presence.

Note: Where the word "ore" may not properly be used, such terms as "mineralization", "mineralized bodies" or "concentrations", etc., should be used.

### GRADE OF PLACER GOLD AND FINENESS

The grade of raw gold is based on the purity of 'fineness' of the quantity of pure gold and the amount of silver impurity. The value of fineness is based on 1,000 fine representing pure gold at the present variable market price per troy ounce. Therefore, it is noted that when raw creek gold is mined the selling price is based on the 'fineness' or purity of the gold. The raw gold must be refined to a purity of approximately 999.99 fineness.

R. G. McConnell 1905

*Gold varies greatly in grade, not only on different creeks but also along different portions of the same creek. The difference of grade is due to the gold being in all cases alloyed with silver in varying proportions. In the lowest grade gold, the silver almost equals the gold in volume, the ratio is 1:1.4. The high grade gold, the ratio is 1:5 and the general average is 1:2.3. In value, the ratio of silver to gold is very small, the proportion calculated from a number of returns being approximately 1:150. While the grade of the placer gold is supposed to conform in a general way with that of the original vein gold, some changes are evidently produced by the leaching out of a portion of the silver contents. Evidence of loss of silver is afforded by the fact that fine gold, which would necessarily be affected more by leaching than the accompanying coarse gold, invariably carries a smaller percentage of silver. Nuggets also assay higher as a rule on the surface than in the centre.*

The proportion of pure gold in bullion or in a natural alloy that contains gold, is expressed in parts per thousand. Natural gold is not found in pure form and is alloyed with the precious metal silver in varying proportions and minor impurities of copper, galena and sphalerite base metals. Natural or free gold deposited by placer mechanics, in gravels by hydraulic water transportation, usually contains a major amount of silver. Therefore, when refining the placer or raw gold the silver content is 0.180 or 180 parts per thousand, the gold content is 820. Wide ranges of purity or fineness exists on individual Klondike District creeks and in the placer gold recovered from different locations. The gravels from deposits on hills, benches, creeks, gulches and White Channel areas vary considerably from a low of fineness 605 - 650 on Henry Creek (Hunker) to a high fineness of 784 - 976 on Monte Cristo (Bonanza). The individual Klondike creeks vary in placer gold purity as reported on fineness from Bonanza Creek.

- a) Bonanza - upper            809 - 827
- b) Bonanza - middle         781
- c) Bonanza - lower         739 - 798
- d) Bonanza - Discovery     762

The unweighted average fineness of the placer gold from the Klondike District is 800 and the range of fineness varies from 605 to 946. The average purity of all gold shipped from the Klondike Gold District in 1905, reported by U.S. Mint returns was 776 (value \$16.02 gold and \$0.1094 silver, reported by R. G. McConnell 1905).



<b>KLONDIKE AREA</b>	<b>RANGE</b>
Adams Gulch (Bonanza)	615-746
American Hill (Bonanza)	864
Allgold (Klondike R.)	860
Bear (Klondike R.)	644-726
Bonanza-upper (Klondike R.)	809-827
Bonanza-middle (Klondike R.)	781
Bonanza-lower (Klondike R.)	739-798
Bonanza-Discovery (Klondike R.)	762
Boulder (Bonanza)	800
Claffey Pup (Quartz)	
Caribou (Dominion)	816-840
Chcechako (Bonanza)	750-785
Dago Hill (Hunker)	798-859
Dominion-upper (Indian R.)	810
Dominion-lower (Indian R.)	847
Dominion-middle (Indian R.)	817-835
Eighty Pup (Hunker)	797
Eldorado (Bonanza)	633-783
Eureka (Indian R.)	677-727
French Gulch (Eldorado)	631-676
Gay Gulch (Eldorado)	780
Gauvin Gulch (Bonanza)	664
Gold Bottom (Hunker)	780-800
Gold Run (Dominion)	848-860
Gold Hill (Eldorado)	768
Goring (Klondike R.)	738
Henry Gulch (Hunker)	605-650
Homeslake (Hunker)	663
Hunker (Klondike R.)	701-859
Hunker-Right Fork	802-804
Hunker-Upper	798-859
Hunker-Mouth	701-726
Indian R. (Yukon R.)	843
Irish Gulch (Eldorado)	624-742
Jackson Gulch (Klondike R.)	829-842
King Solomon Hill (Bonanza)	785-800
Last Chance (Hunker)	683-832
Lombard Pup (Dominion)	860
Lovett Gulch (Bonanza)	808-836
Little Blanche (Quartz)	658
Montana (Indian R.)	770
Monte Cristo (Bonanza)	784-976
Mint Gulch (Hunker)	851
Oro Grande (Eldorado)	775
Paradise Hill (Hunker)	735-802
Quartz (Indian R.)	732-784
Skookum (Bonanza)	605
Sulphur (Dominion)	797-821
Trial Hill (Bonanza)	800-805
Victoria Gulch (Bonanza)	807-820

<b>KLUANE AREA</b>	<b>RANGE</b>
Burwash (Kluane R.)	871-876
Bullion (Slims R.)	871

<b>BIG SALMON AREA</b>	<b>RANGE</b>
Lake (S. Big Salmon R.)	895
Livingstone (S. Big Salmon R.)	880

<b>SIXTY MILE AREA</b>	<b>RANGE</b>
Big Gold (Sixtymile R.)	854
Glacier (Sixtymile R.)	830-860
Fortymile R. (Yukon R.)	814-820
Matson (Sixtymile R.)	775-890
Miller (Sixtymile R.)	827-857
Moose (Fortymile R.)	855
Poker (U.S. side) (Fortymile R.)	873
Sixtymile R. (Yukon R.)	808
Tenmile (Sixtymile R.)	830-845

<b>STEWART RIVER AREA</b>	<b>RANGE</b>
Brewer (Stewart R.)	910
Ballarat (Yukon R.)	852
Barker (Stewart R.)	793-900
Black Hills (Stewart R.)	750-855
Henderson (Yukon R.)	725-730
Independence (Stewart R.)	780-794
Kirkman (Yukon R.)	860-896
Mariposa (Scroggie)	900
Scroggie (Stewart R.)	900-905
Stewart R. (Yukon R.)	837-850
Thistle (Yukon R.)	848-895
Canadian (Yukon R.)	864-883

<b>MAYO-McQUESTEN AREA</b>	<b>RANGE</b>
Anderson (Mayo R.)	720-728
Clear (McQuesten R.)	828-860
Davidson (Mayo R.)	840
Dublin Gulch (McQuesten R.)	860-923
Duncan (Mayo R.)	792-802
Haggart (McQuesten R.)	885-895
Hight (Mayo R.)	832-845
Johnson (McQuesten R.)	760-820
Ledge (Mayo R.)	808-820
Lightning (Mayo R.)	830
Minto (Mayo R.)	827-835
Steep (Mayo R.)	931-946
Thunder Gulch (Lightning)	790-825

<b>MOOSEHORN RANGE</b>	<b>RANGE</b>
Discovery (Scottie Cr.-Tanana R.)	820

<b>DAWSON RANGE</b>	<b>RANGE</b>
Revenue	850-880

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1988 PLACER EXPLORATION PROGRAM

Previous Placer Exploration - Vancouver Creek

On November 3, 1987, Mr. Gary W. Crawford telephoned the writer from Dawson City and reported that Mr. Alan Lewis had tested placer gravels on lower Vancouver Creek. The Lewis placer claims, Poker 1 - 53, were located on 5 miles of Vancouver Creek from the confluence with the McQuesten River.

- 1) Report Placer Values: Poker Claims (see Figure #5 for approximate location).
  - Reported Value Test Pit 730 cy - \$9.80 cy (inferred possible value).
  - Reported Value Test Pit 3,260 cy - \$6.60 cy (inferred possible value).
- 2) Reported fineness Vancouver Creek gold - 800 and most of gold was reported to be 30 - 60 mesh in size.
- 3) Bedrock drain excavated that was reported to be 600 - 800 feet in length and that the grade of the creek was at least 2%.
- 4) At the test cut site the gravels were thawed and twelve (12) feet in depth to bedrock.
- 5) The gravel processing system was a Derocker with a jig for recovery of heavy concentrate.
- 6) The Lewis placer property was for sale and/or lease with camp and placer equipment available.

Access Roads - Vancouver Creek Area

Considerable road work was required to clear 14 miles (22.5 km) of access road from the site of McQuesten/Klondike Hwy. to the confluence of Vancouver Creek and the McQuesten River. Approximately 7.5 miles (12 km) of rough tractor trail from the mouth of Vancouver Creek to Right Hook Creek required widening and clearing for transportation of the large backhoe. A total of 2.37 miles (4.2 km) of road construction was required for access to test sites upstream on Vancouver Creek, from the confluence of Right Hook Creek, and upstream on Thoroughfare Creek.

1988 Exploration Program - Carson Gold Corp.

Carson Gold Corp. of Vancouver, British Columbia, conducted a placer gold test program on Vancouver Creek and tributaries during January to February 29, 1988. Mr. Gary W. Crawford was the project supervisor for Carson Gold Corp. and organized the exploration program on Vancouver-Right Hook and Thoroughfare Creeks. In early January, 1988, work commenced in Dawson City to winterize a Caterpillar D8H tractor, Caterpillar 245 backhoe, Becker Hammer Drill (5 1/2 O.D.), and a grader for exploration on Vancouver Creek. The mobilization of the equipment to the McQuesten River area is reported to have been in January and early February. Preliminary testing of the gravels on Vancouver Creek indicated a subterranean water flow, non-frozen or thawed gravels and a gravel thickness of 20 feet or less. The project supervisor decided not to placer drill the property but to complete the exploration by test pit excavations with the backhoe and tractor trenching by blading and ripping. Considerable road work was required to clear 14 miles (22.5 km) of access road from the site of McQuesten/Klondike Hwy. to Vancouver Creek and the McQuesten River. The 7.5 miles (12 km) of rough tractor tote trail upstream from the mouth of Vancouver Creek to Right Hook Creek required widening and clearing for transportation of the backhoe. A total of 2.37 miles (4.2 km) of road construction was required for access to test sites excavated on Vancouver Creek upstream from the confluence of Right Hook Creek and upstream on Thoroughfare Creek. A total of 15 test pit sites were excavated on Vancouver - Right Hook and Thoroughfare Creeks. Mr. Dennis Wiens, Whitehorse, Y.T. was the field foreman during the sampling of test sites and reported to the writer that a total of eight (8) test pits were excavated to a bedrock clay layer and seven (7) test pits were partly excavated and abandoned due to groundwater seepage and/or large boulders. Due to the winter weather conditions at the end of February, the gravel samples from the test pits could not be processed at Vancouver Creek. It is reported that during the period March 9 - 23, 1988, gravel samples were collected from eight (8) test pits excavated to the clay layer bedrock and transported to Dawson City for processing. Mr. Dennis Wiens reported to the writer on August 27, 1988, that approximately 250 lbs (114 kg) of gravel samples (3 - 4 bags) were collected from each of the eight (8) completed test pits. The reader is referred to Figure #5 - 1988 Exploration Program for the location of the test pits excavated by a backhoe. The eight (8) test pit samples were reported to have been processed for gold content under the direction of Mr. Gary Crawford, project supervisor for Carson Gold Corp.

On the 27th of August, 1988, R. G. Hilker, P. Eng., and Mr. Dennis Wiens flew to Vancouver Creek in a chartered Trans North Air, Jet Ranger helicopter and examined the test pit sites. Mr. Wiens supplied the writer with a test pit location plan and information concerning the gravel samples collected from the eight (8) pit sites. The writer noted the approximate test pit dimensions and depth. The writer was advised that the placer gravel samples were collected from near the bottom of the test pits. The writer noted that considerable road work and excavations of the 15 test pits were conducted at sites on Vancouver - Right Hook and Thoroughfare Creek as reported by Mr. Dennis Wiens

and Carson Gold Corp. The reader is cautioned that R. G. Hilker, P. Eng., has no direct knowledge of the work program conducted by Carson Gold Corp. on Vancouver Creek and area. The writer does acknowledge that the 15 test pits noted on the 27th of August, 1988, were excavated and that the exploration work had been conducted as reported by Carson Gold Corp.

The writer numbered the pits as indicated on the location sketch - Figure #5 for convenience of describing the pit volume and approximate location.

Excavated Test Sites

<u>Test Pit No.</u>	<u>Creek Location</u>	<u>Placer Claim or Lease</u>	<u>Approx. Dimensions</u>	<u>Approx. Depth</u>	<u>Approx. Volume</u>
P-01	Thoroughfare	Golden	15 X 18 sf	15 ft.	150 cy
*P-02		Golden-1	12 X 15 sf	10 ft.	65 cy
*P-03	Vancouver	Poker	12 X 15 sf	10 ft.	65 cy
P-04		Poker	15 X 18 sf	15 ft.	150 cy
P-05		Poker	15 X 18 sf	15 ft.	150 cy
P-06		Poker	15 X 18 sf	15 ft.	150 cy
*P-07		Poker	12 X 15 sf	10 ft.	65 cy
*P-08	Vancouver	PL7467	12 X 15 sf	10 ft.	65 cy
P-09		PL7467	18 X 20 sf	15 ft.	200 cy
P-10		PL7467	18 X 20 sf	15 ft.	200 cy
*P-11		PL7467	12 X 15 sf	10 ft.	65 cy
*P-12		PL7467	12 X 15 sf	10 ft.	65 cy
*P-13	Right Hook	PL7469	12 X 15 sf	10 ft.	65 cy
P-14		PL7469	15 X 18 sf	15 ft.	150 cy
P-15		PL7469	15 X 18 sf	15 ft.	150 cy

\* Denotes test pits not completed to clay horizon.

\*\*\*\*\*

Summary - Test Pit Volumes

- 1) Thoroughfare Creek - Golden Placer Claim Group - (P-01 and P-02) approx. total volume pits - 215 cy.
- 2) Vancouver Creek - Poker Placer Claim Group - (P-03 to P-07) approx. total volume pits - 580 cy.
- 3) Vancouver Creek - Lease To Prospect PL7467 - (P-08 to P-12) approx. total volume pits - 595 cy.

- 4) Right Hook Creek - Lease To Prospect PL7469 - (P-13 to P-15) approx. total volume pits - 365 cy.

Note - Test pits and access roads were excavated under the supervision of Gary Crawford - Carson Gold Corp. and the field foreman was Dennis Wiens. The trench numbering system was devised by the writer and the approximate pit dimensions were noted by R. G. Hilker on 27th of August 1988. Therefore, the volume of gravel excavated at the 15 test sites and individual test pits is only approximate.

Reported Value Gravels - (Gary W. Crawford - Carson Gold Corp.)

<u>Test Pit No.</u>	<u>Creek Location</u>	<u>*Approx. Weight</u>	<u>**Gold Colors</u>	<u>**Reported Value</u>
P-01	Thoroughfare	250#	Not Reported	>\$2.00 cy
P-04	Vancouver	250#	Not Reported	>2.00 cy
P-05		250#	Not Reported	>2.00 cy
P-06		250#	Not Reported	>2.00 cy
P-09	Vancouver	250#	Not Reported	>2.00 cy
P-10		250#	Not Reported	>2.00 cy
P-14	Right Hook	250#	Not Reported	>2.00 cy
P-15		250#	Not Reported	>2.00 cy

\*\*\*\*\*

Note:

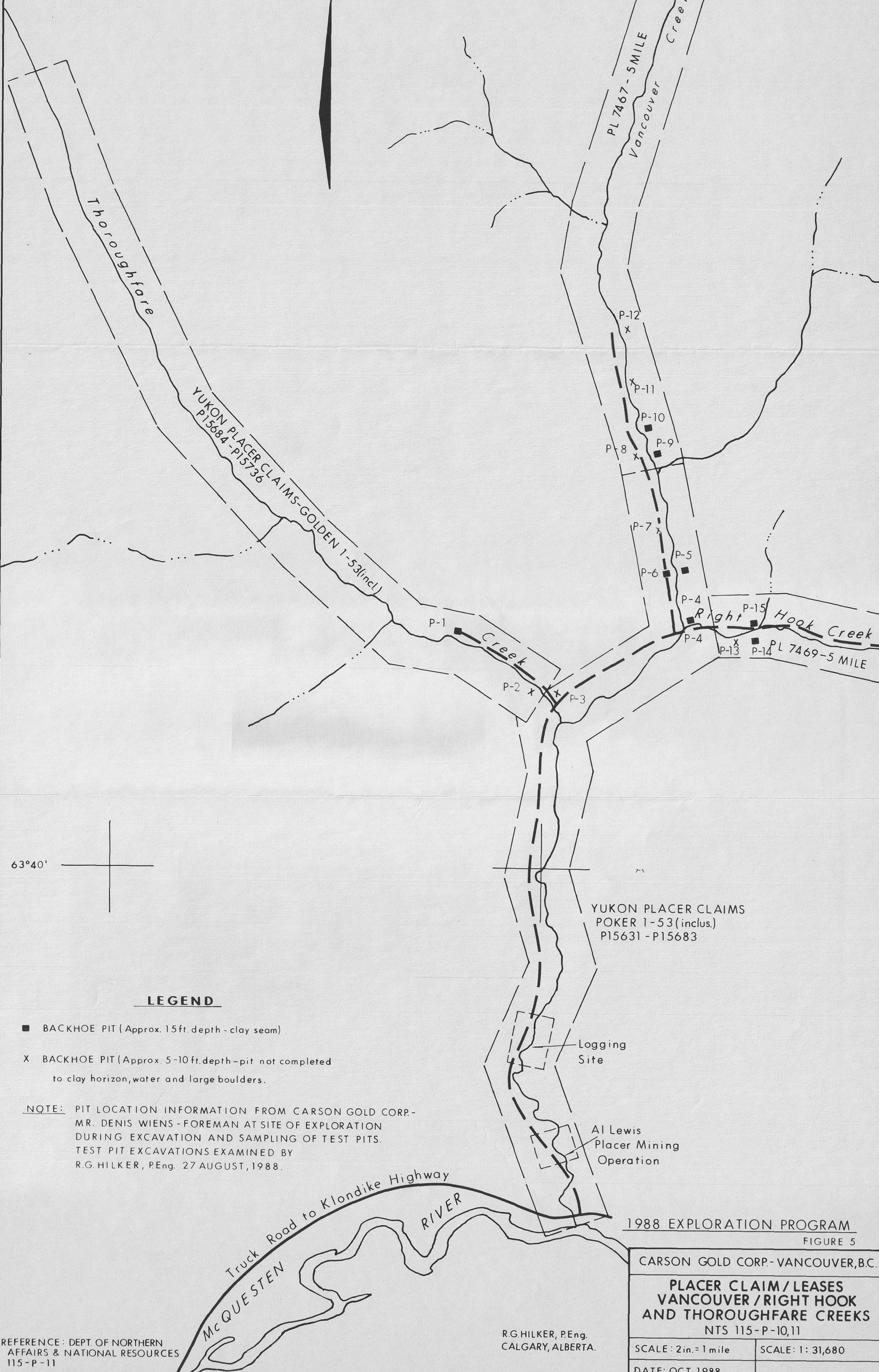
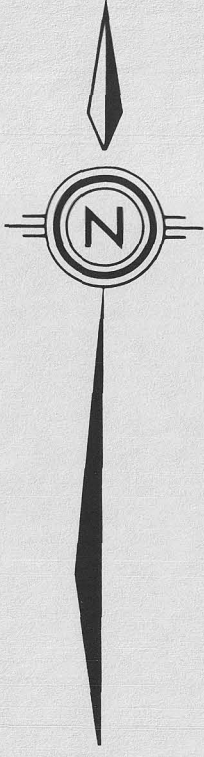
- 1) \*Mr. Dennis Wiens reported that 3 - 4 bags of gravel samples, with an approximated weight of 250 pounds, were gathered from each of the completed eight (8) test pits excavated to a clay layer horizon near or on bedrock. The gravel samples collected were reported to have been from gravel near the bottom of the test pits.
  - The test pits were partly sloughed with bank gravels that were caused by spring run-off water and summer rains. No bedrock rock type was noted in the test pits excavated during the writer's site visit 27th of August, 1988. The writer has no direct knowledge of the true depth of creek gravels that overlay bedrock on Vancouver - Right Hook and Thoroughfare Creeks.
  - Mr. Dennis Wiens reported to the writer that the exploration test samples were collected from the test pits and transported to Dawson City March 9 - 23, 1988. Due to winter weather conditions, the samples could not be processed on site.
- 2) \*\*Denotes values reported to Carson Gold Corp. by Mr. Gary W. Crawford. The gravel samples collected from the test pits were transported from the sites to Dawson City. No further information is available to Carson Gold Corp. as to how the samples were processed.



137°10'

137°05'

63°45'



63°40'

**LEGEND**

- BACKHOE PIT (Approx. 15ft. depth - clay seam)
- X BACKHOE PIT (Approx. 5-10 ft. depth - pit not completed to clay horizon, water and large boulders.)

NOTE: PIT LOCATION INFORMATION FROM CARSON GOLD CORP. - MR. DENIS WIENS - FOREMAN AT SITE OF EXPLORATION DURING EXCAVATION AND SAMPLING OF TEST PITS. TEST PIT EXCAVATIONS EXAMINED BY R.G. HILKER, P.Eng. 27 AUGUST, 1988.

YUKON PLACER CLAIMS  
POKER 1-53 (inclus.)  
P15631 - P15683

Logging Site

Al Lewis  
Placer Mining  
Operation

1988 EXPLORATION PROGRAM  
FIGURE 5

CARSON GOLD CORP. - VANCOUVER, B.C.

**PLACER CLAIM / LEASES  
VANCOUVER / RIGHT HOOK  
AND THOROUGHFARE CREEKS  
NTS 115-P-10,11**

SCALE: 2in. = 1 mile

SCALE: 1: 31,680

DATE: OCT. 1988

CONCLUSIONS

- 1) Mr. Gary W. Crawford, Field Supervisor for Carson Gold Corp. conducted a placer exploration program on Vancouver - Right Hook and Thoroughfare Creeks. The placer exploration program was reported to have been conducted by Carson Gold Corp. during January to February 29, 1988.
- 2) Considerable tote trail road work was necessary to transport a large backhoe to fifteen (15) test sites on Vancouver Creek and tributaries.

Summary Excavated Test Pits:

- (1) Thoroughfare Creek - Golden Placer Claim Group - (P-01 and P-02) approx. total volume pits - 215 cy.
  - (2) Vancouver Creek - Poker Placer Claim Group - (P-03 to P-07) approx. total volume pits - 580 cy.
  - (3) Vancouver Creek - Lease To Prospect PL7467 - (P-08 to P-12) approx. total volume pits - 595 cy.
  - (4) Right Hook Creek - Lease To Prospect PL7469 - (P-13 to P-15) approx. total volume pits - 365 cy.
- 3) Mr. Dennis Wiens, project foreman, collected approximately 250 pounds of gravel samples from each of eight (8) test pits excavated to a clay seam approximately 15 feet in depth. The eight (8) gravel samples were collected from the test pits and transported to Dawson City during the time period March 9 - 23, 1988. Due to winter weather conditions, the samples could not be processed on site. Samples were reported to have been gathered from P-01, P-04, P-05, P-06, P-09, P-10, P-14, and P-15 (see Sketch Figure #5).
  - 4) Mr. Gary W. Crawford reported to Carson Gold Corp. that the eight (8) test pit samples were processed in Dawson City and indicated a value of >\$2.00 per cubic yard in creek gravels.
  - 5) The Vancouver Creek gravels are reported to be thawed and 20 feet or less in depth.
  - 6) The writer calculated the approximate gradients:
    - Vancouver Creek gradient - 2.47%.
    - Right Hook Creek gradient - 2.55%.
    - Thoroughfare Creek gradient - 1.35%.
  - 7) The Vancouver Creek placer gold fineness is reported to be 800 and to be 30 - 60 mesh in size.

- 8) This Placer Evaluation Report of 1988 exploration conducted on Vancouver, Right Hook and Thoroughfare Creeks was prepared from information documented by Carson Gold Corp. and supplied to the writer.

The reader is cautioned that R. G. Hilker, P. Eng., has no direct knowledge of sampling procedure of the reported 15 test pits excavated, weight of samples from 8 test pits sampled, volume of pits excavated, exact location/size of test pits and weight or value of placer gold recovered from grab samples of gravels taken from test pits. The writer has no direct knowledge of dates of exploration conducted on Vancouver, Right Hook and Thoroughfare Creeks, mobilization and demobilization from the area and accuracy of sample processing or values reported.

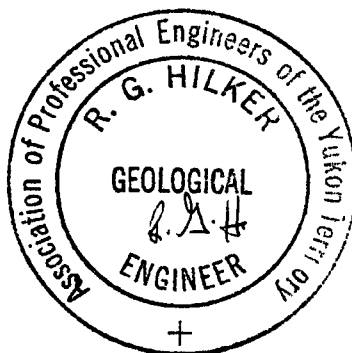
The writer does not certify the status of the placer property described in this report under section "Yukon Placer Claims and Leases".

- 9) The 1988 Exploration Program conducted by Carson Gold Corp. test pit results are inconclusive as to placer gold values in creek gravels. The writer recommends that any further placer exploration in the Vancouver Creek area is supervised by a professional placer engineer.

CERTIFICATION

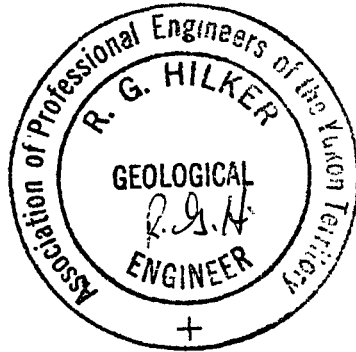
I, ROBERT G. HILKER, of 324 Silver Valley Rise N.W., in the City of Calgary in the Province of Alberta, Canada, DO HEREBY CERTIFY:

1. THAT I am a Consulting Geological Engineer, with an office located at 324 Silver Valley Rise N.W., in the City of Calgary, in the Province of Alberta.
2. THAT I am a graduate of the Michigan Technological University located at Houghton, Michigan, U.S.A., where I obtained a Bachelor of Science Degree in Geological Engineering (Exploration Option) in 1962.
3. THAT I am a registered Professional Engineer (Geological); in the Association of Professional Engineers, Geologists and Geophysicists of Alberta - #38356; The Association of Professional Engineers of the Yukon Territory; The Association of Professional Engineers of British Columbia (non-residence license); Fellow of the Geological Association of Canada; and a Member of the Society of Mining Engineers of AIME - #1436600.
4. THAT I have practised my profession as an engineer and geologist for the past twenty-six years.
5. THAT I have examined the Vancouver Creek tributary placer property test pit sites that were excavated by Carson Gold Corp. that are located on Leases To Prospect PL7467 and PL7469, and Yukon Placer Claim Groups Golden 1-53 and Poker 1-53; on 27 August 1988 (Flight Ticket - Appendix).
6. THAT I do not certify the status or validity of Yukon Leases To Prospect PL7467 and PL7469, Yukon Placer Claims Poker 1-53 (incl.) Grant Nos. P15631-P15683 and Yukon Placer Claims Golden 1-53 (incl.) Grant Nos. P15684-P15736 that are located in the Mayo Mining District of the Yukon Territory.
7. THAT I have no direct knowledge of the exploration program conducted by Carson Gold Corp. on placer properties in the Vancouver Creek and tributary area of the Yukon Territory.
8. THAT I have personally prepared the Placer Gold Evaluation Report dated November 4, 1988 on the Vancouver Creek area, Y.T. from information documented by Carson Gold Corp. and supplied to the writer. THAT I was not present or on the placer properties during the excavation or sampling of fifteen (15) test sites located on Vancouver - Right Hook and Thoroughfare Creeks.



9. THAT I have no direct, indirect or contingent interest in any of the Yukon Leases To Prospect or Yukon Placer Claims located on Vancouver - Right Hook and Thoroughfare Creeks, or in any securities or common stock issued by Carson Gold Corp.

Dated this 4th day of November, 1988, at the City of Calgary, in the Province of Alberta.



A handwritten signature in cursive script that reads "R. G. Hilker".

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R. G. Hilker, P. Eng.

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APPENDIX

- Trans North Air Flight Invoice No. 80579



REMIT PAYMENT TO:  
**TRANS NORTH AIR**  
 TRANS NORTH TURBO AIR LTD.  
 AIRPORT HANGAR "C" • WHITEHORSE • YUKON • Y1A 3E4  
 TELEPHONE (403) 668-2177 FAX (403) 668-3420

CHARTERER Carson Gold Corp.  
201-1512 Yew St.  
 BILLING ADDRESS Vancouver B.C.

ACCOUNT NUMBER	
INVOICE NUMBER	80
INVOICE DATE	
A/C TYPE	BH06
AIRCRAFT REGISTRATION C	FDRZ
FLIGHT DATE	27 08 88
PURCHASE ORDER NO	

FUEL & OIL X	TNTA FUEL USED	CHRS/LITRES	FROM
<input checked="" type="checkbox"/>	J.P.4	1.7	Dawson

FROM	MILES	HOURS	ZONE	REMARKS	NO OF PASS.	FREIGHT Kg
Dawson City.						
TO Vancouver Cr.				R.G. Hilker -		
Indian R.		1.7		Dennis Wens-		
Paid cheque						

SUB	GL	AMOUNT
		1.7 @ 550 935.00.

TERMS PAYABLE UPON RECEIPT OF INVOICE  
 2% INTEREST PER MONTH (24% PER ANNUM) WILL BE CHARGED ON ALL OUTSTANDING AMOUNTS OVER 30 DAYS IF INTEREST IS NOT PAID. FUTURE FLIGHTS WILL BE ON A CASH BASIS

X R. Hilker  
 CHARTERER'S SIGNATURE

G.E.G.  
 INITIALS

[Signature]  
 PILOT'S SIGNATURE

CO-PILOT'S NAME

ENGINEER'S NAME  
D.H.H. Dave Hamblin

CYCLES

WAITING TIME	@	/HR
FUEL	170 LT @ .63 /LITRE	107.10
FUEL	@	/LITRE
MEALS & LODGING		
OTHER		
OTHER		

**TOTAL \$ 1042.10**

CARRIAGE SUBJECT TO TERMS OF PUBLISHED TARIFF  
 TARIFF AVAILABLE TO PUBLIC VIEW AT TRANS NORTH OFFICE  
**THIS IS YOUR ONLY INVOICE — PAY UPON RECEIPT**